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The American Farmer.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." Virg.

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VOL. X.—No. 10.]

OCTOBER, 1881.

[NEW SERIES

Mr. Randall's Address.

The Hon. Samuel J. Randall, of Pennsylvania, late Speaker of the U. S. House of Representatives, delivered the Annual Address at the Baltimore County Fair, September 9th.

Mr. Randall, after alluding to the advantages of situation and climate of Baltimore, and to the fact that though the centre of population in this country was moving westward with steady and undeviating exactitude, it was always close to the parallel of latitude on which that city stands, said:

Westward, indeed, the star of empire takes its way, but ever in a straight line from near Baltimore, calling upon the commercial and other activities of this place to follow and not to lose sight of the advantages it offers, nor to forget the ample rewards which accompany the agricultural products of our country in all the phases through which they pass from the fields where they are grown till they reach the hands of the consumers. Here, then, upon the line of the movement and growth of the American people in all the material elements which go to make up a nation's prosperity and the happiness of its people, you do well to advance in every legitimate way the perfection of the science of agriculture. If I can claim commendation for any public service I feel it is for my earnest efforts to appreciate and foster the resources of our national power and wealth, for it has now grown to be axiomatic that statesmanship after all consists chiefly in a full and true knowledge of a nation's resources. The people who raise their own food and supply themselves with their own clothing, and yet have a surplus left over to feed and clothe other less favored nations occupy a vantage ground which cannot be easily overpassed. Now God in his providence has given us as an inheritance bounteously of virgin soil, primeval forests, abundant water courses, iron enough to supply the world, and coal sufficient to turn it into merchantable commodities. As God helps soonest and best him who helps himself, our people so far have by courage, industry, inventive genius and the application of scientific skill, turned these blessings to their greatest

advantages. But there remains something yet to do. To stand still is to let others pass us in the race. What we have we must retain and gain more, and to do so we must establish the most scientific husbandry, which can be most promoted by such organizations of farmers as the one I now address, and can be further accelerated in their great object by the practice of those economies on the farm which have been too much neglected.

I confess it is difficult to restrain the impulse to launch out into praise of the health and wealth and peaceful virtues which attend the farmer's life. But it has already been done, and in a manner that renders other attempts weak and lame. The master intellects of every age and clime have paid the richest tributes of their genius to agriculture as the sure foundation of national prosperity and as furnishing the most solid of all the enjoyments of life.

We have read of agriculture as practiced in the ancient period among the Egyptians, the Israelites, the Greeks, the Romans, and in the middle ages by the Spaniards, both at home and in Mexico and in Peru, the Scotch and English, and we have learned the lesson from the Bible and from Shakespeare, and what collegiate farmer who hears me can ever forget the refined elegance with which the subject is treated by Homer and Virgil. I shall better please a practical people and one which looks to results, by confining myself to facts in our own history as to our own agricultural productions. The agriculture of a nation is not only the means of private wealth and individual happiness, but it is the power that sustains every other resource and interest. Commerce, manufacture and the arts are all dependent upon it. It furnishes the raw material for the busy hands of mechanical labor. It freights our shops and sends our flag to gladden the people of almost every civilized nation. It feeds and clothes our people, and it brings revenue from abroad. As the Egyptians fed the Romans, so we now feed nearly all the nations of Europe.

In the first place, let us see what we have done, and then let us consider what remains to do, for there are envious eyes upon our pre-eminence and competition that will exert every

nerve to supplant us. Of course in the necessarily brief period I shall address you, you cannot expect me to go into minute detail concerning the products of our fields and workshops. The figures are found most carefully compiled in our public documents, and are the fruitful source from which scholars and scientists draw those lessons of wisdom which I am glad to know are not altogether unheeded by our agriculturists. But there are a few general statements of facts and figures kindly furnished to me by the government officials, which I feel sure, however high may be your conception of our growth in industrial resources, will to many be matter of amazement. I will run them over rapidly, and they will not need comment at my hands, as they proclaim clearly their own exultant triumph.

The value of the exports of bread and breadstuffs, cotton, provisions and tobacco, the four leading agricultural articles of export, has been for the years stated as follows—for 1881 it is estimated subject to slight modifications and corrections):

The export of bread and breadstuffs was in 1821 \$5,184,999; 1830, \$7,071,767; 1840, \$13,535,926; 1850, \$13,066,509; 1860, \$24,422,310; 1870, \$72,250,933; 1875, \$111,458,265; in 1881 \$270,333,744.

Cotton—In 1821 \$20,157,484; 1881 \$247,695,746.

Provisions—1821, \$3,246,817; 1881, \$151,528,268.

Tobacco and manufacture of tobacco—1821, \$5,798,045; 1881, \$20,878,881.

Let me here state as a matter of self State pride the figures as to the export of mineral oils in 1862 \$1,539,027; in 1881 \$40,315,596, mostly from Pennsylvania, and with which we may be said to light the civilized world.

In 1830 the total value of exports of domestic merchandise was \$58,524,878; in 1881 \$883,915,947. The value of the exports of products of agriculture in 1830 was \$48,095,184, and in 1881 \$724,489,413. The percentage which the value of the exports, the products of agriculture, bear to the total value of the exports of domestic merchandise for 1830 was 82 18-100 per cent., and for 1881 81 96-100 per cent. From 1821 to 1881 it has ranged a little above or a little below 80 per cent. This would seem to settle the question of our being an agricultural people. Take as an illustration the articles of butter and cheese. The value of butter of domestic production exported from the United States in 1855 was \$418,723, and in 1881 \$6,256,024. Of cheese—in 1855 it was \$514,034, and in 1881 \$16,380,248. The "American Dairyman," New York, April 1, 1880, page 12, makes the following statement:

"The dairy industry of the United States represents an investment of over \$1,300,000,000, and an annual production of butter and cheese of over \$350,000,000 in value, which is \$50,000,000 more than the wheat crop of the country, one-seventh (1-7) more than the hay crop, three times more than the oat crop, one-third more than the cotton crop and one-fifth less than the corn crop. Over 350,000,000 pounds of cheese and 1,500,000,000 pounds of butter are made annually.

There is yet another view of good result as to the enormous agricultural productions in this country. For the year ending June 30th, 1876, the balance of trade with foreign nations was in our favor for the first time since the close of the civil war. It has so continued ever since and is likely to be for years if our people are at all frugal. In 1880, and 1881 the flow of gold and silver was largely towards the United States and is still continuing. In 1876 the balance of trade in our favor amounted to \$79,643,481; in 1877, \$151,152,004; in 1878, \$257,814,234; in 1879, \$264,661,666; in 1880, \$167,683,912; in 1881, \$259,702,718, aggregating \$1,180,658,015. The last two years the flow of gold and silver in part payment has been very large. In 1880 it was \$75,891,391; in 1881 it was \$91,168,650, and during the six years to which I have referred the percentage of our exports of agricultural products as compared with all the other domestic exports was for year 1876, 76 67-100 per cent.; for 1877, 72 63-100 per cent.; for 1878, 77 07-100 per cent.; for 1879, 78 12-100 per cent.; for 1880, 83 25-100 per cent.; for 1881, 81 96-100 per cent. You will at once see the importance to our financial soundness that our agriculture should be in every way kept up to its maximum. This condition of things is due mainly, in my opinion, to three causes. First, our virgin soil, with its unprecedented power of production and the extensive use of our agricultural labor-saving implements. Next, the low rate of interest prevailing, which is particularly serviceable to our landed proprietors; and last, the problem of low transportation from the West to the Atlantic and the low rate of steamship freights on the ocean, all of which combine to enable us to send our wheat, our corn, our provisions and our many other productions into European markets at a less cost than the home producers there can afford to sell for. I remember some years ago your most distinguished citizen, Mr. Garrett, told me he expected to see wheat brought from Chicago to Baltimore for seven cents a bushel, to-day it is ten cents a cwt., which is equal to about seven cents a bushel. That gentleman may have forgotten his prediction, but it made at the time a deep impression on my mind. Whether this rate of freight is remunerative to the railroads or not I do not know, but it has at least solved the problem of transportation in our favor.

England and her Colonies, our chief competitors, have been aroused to careful inquiry into the causes which have produced these results and as to whether they are to be of longer continuance. I have read with great interest the pamphlet of Mr. John A. Blake, member of the English Parliament, entitled "The Effect of American Agricultural Competition on the Value of Land in Great Britain and Ireland." Mr. Blake says: "As I possess some land and have, for what is for me, an important sum about being invested in landed securities, I was anxious to learn if the ruin pictured by Mr. Atkinson awaited all circumstanced like me." Hence his visit to and personal inquiry in the United States.

Mr. Atkinson had previously published the following startling paragraph in the *Fortnightly Review*:

"That under the working of the new force represented by the modern railway system and the steamship, the present relations of landlord and tenant peculiar to Great Britain must and will be so entirely changed as to result practically in the almost entire disappearance or abatement of the element of rent in respect to land devoted to the purposes of agriculture."

Mr. Blake in his letter of June 7, 1881, written after his return to England, makes the following admission:

"In a letter I addressed to you from San Francisco in December, I stated, as the result of close investigations I had made in the United States and the Dominion of Canada, my decided opinion, that owing to foreign competition in breadstuffs and meat, mainly from the American Continent, that within six years the value of land in Great Britain and Ireland would be lowered by at least one-third."

It has been urged against this prediction of Mr. Blake, first, that over-land and ocean freight on wheat and meat will be a safeguard against English prices falling lower than they are; second, the higher rate of wages in America; third, the great wheat lands will, from constant crops being taken from them, without rotation or manure, become exhausted; and fourth, the vastly increasing population of the United States requiring so much for its own consumption.

In his letter of June 12, 1881, Mr. Blake considers these objections, first, as to the increase of population in America, will lead to so large a consumption of agricultural produce, that the amount for exportation must largely diminish, he uses this plain language:

"Those who believe this have a very imperfect idea indeed of the mighty agricultural capabilities of America. Those who know them will concur with me that the chief effect upon increase of population, whether produced from America itself, or from immigration, assuming a fair proportion to devote themselves to agriculture, must, after exacting a liberal allowance for home consumption, be to vastly increase the surplus for exportation. On this subject I shall sustain my own opinion by giving that of one of the most eminent American authorities, Mr. Edward Atkinson, of Boston, who says:

"We now number fifty millions people, a hundred millions could be sustained without increasing the area of a single farm, or adding one to their number, by merely bringing our produce up to the average standard of reasonably good agriculture; and then there might remain for exportation twice the quantity we now send abroad to feed the hungry in foreign lands. As to the probable exhaustion of the wheat lands from constant production, without manure, it is completely answered by the following extract from the speech of Hon Abram S. Hewitt, of New York, (one of the ablest as well as most useful men who ever sat in Congress), delivered in the House of Representatives, February 11, 1879, on the subject of "Our National Inheritance and how to enjoy it." He says:

"I never contemplate the great maps of the United States which hang in this hall, or consider the natural resources of this broad continent without a deep feeling of wonder, love and

praise. The soils, their character, chemistry, origin and value, form a vast theme of themselves, of which time will only permit me to give a single illustration. In Europe in the fertile valley of the Rhine; and in China, in the great Yellow River Valley, and in our own Mississippi Basin, there is a geological formation called the loess, which is as wonderful as it is almost entirely unknown, even to the intelligent members of this House. This formation has the marvelous property of fertilizing itself forever by drawing up from deeper sources of fertility all the elements which are required for the perennial nourishment of the cereal crops. In China, an area of about two hundred and fifty thousand square miles of this loess formation has for the last three hundred years supported a population of not less than one hundred and fifty millions of human beings, which is about one person to the acre, and this is the explanation of the amazing capacity of China to support the dense population which she is known to possess.

The area, depth and nature of our own vast loess field, which covers a considerable part of the grain region of the West, are perhaps the most important factors in the prosperous growth of America for centuries to come. How extensive, how deep may be our American loess formation, and where its boundaries, can only be determined by a thorough geological survey. That it is in Louisiana and Dakota gives some idea of the extent of the problem, and opens up visions of the vast population which will at some future day exist upon our soil, and shows how transitory and how needless are the troubles which now embarrass the condition of the laboring population of this country."

I shall not pursue this subject any further, believing that what I have said will suffice to impress upon your minds the fullest appreciation of our agricultural capabilities, and as to where we stand in the matter of production.

Now then what are the requirements imposed upon us in order to retain our present command of the markets for our agricultural products, and to maintain and increase even our present rate of importation? In the first place we can, to use the language of Mr. Atkinson already quoted, "by bringing our products up to the average standard of reasonably good agriculture."

The British farmer pays more in rent for an acre of land than we can purchase it in fee simple. How does it happen that he has been able to do it? He is not physically stronger nor more industrious. Neither is the sky that bends over him more propitious than ours, nor his soil more fertile. It is because he exercises every economy of means provided by science and skill, and introduces promptly every labor-saving appliance. This is what we must begin to do, and to enforce its necessity is the mission of Agricultural Societies. That they are potential for good we have seen in the past. They are vigilant to learn every improvement in tillage, and breed of cattle, all new varieties of seed and plants, and to disseminate their information for the common welfare.

I again quote from the speech of Mr. Hewitt: "We need to know all about the mineral fertilizers of the country, the green sand and those singular deposits of phosphates in the South

which seem to have been placed there by Divine Providence to balance the active drain which cotton culture makes upon that soil."

The farmer, moreover, is a lesser ruler, and as in the administration of mighty nations, waste, extravagance, negligence of ordinary economies bring bankruptcy and ruin, so, too, like policy on the part of the farmer is followed by disastrous failure. It has been said that a French family will live on what an American family waste. This should not be. Every thing that can be turned to profit should be utilized, and everything deleterious should be ruthlessly exterminated.

Our industry and activity should be accompanied by that other virtue which has never ruined any, while it has enriched all who have practiced it—the virtue of frugality. In this day and generation it is not fashionable I know, and yet it is necessary in nations as well as in individuals if they would lead a healthy existence. The ostentation of wealth is becoming as reckless as it was in the days of Cæsar, when a Roman holiday cost the giver who sought popular favor sums that wrecked the revenues of a province or even as it was in the days of Louis Fourteenth. We remember it was the sure sign in the former of the fall of the Republic, and in the latter the forerunner and cause of the horrors of the revolution. It inevitably leads to corruption, and when extravagance pervades the functions of free government it is not far from extinction, unless quickly remedied. For when ostentation and reckless extravagance characterize those who, by their position in society, ought to give better example, it will not be long before the officials travel the same road, and the consequence will be heavier taxation, which, by increasing the price of agricultural and other products, renders successful competition every day more difficult and finally impossible. One cent additional to the cost of production may turn the scale against us. The farmer therefore is deeply interested in governmental economy and individual frugality.

In a word it is absolutely essential, if we are to outstrip all competition in agricultural production, and in supplying the markets of the world, that we shall raise the best products and lay them down where they are in demand at the cheapest price. In scientific knowledge and skill to provide labor-saving machinery, we are unequalled. Let us at the same time practice a cleanly, careful, exact, economical agriculture.

It is much better to cultivate little land, and do it well, than to cultivate much and at a loss. Prudent, scientific and skillful tillage, produces from small tracts, relatively most enormous results.

And now, in conclusion, let me commend to you the advice which Walter Scott, in one of his romances places in the mouth of the Laird of Dumbiedikes, who, as he was dying, solemnly enjoins his son, who reverently catches every word, "Jock, when ye have naething else to do be aye planting a tree, for it will be growing when ye are sleeping."

—THE GREAT CHICAGO SHOW brought out about 1,000 cattle, as many horses, and 582 sheep, and was a great success in every respect.

How to Make Farming Pay.

The Deer Creek Farmers' Club met at the residence of Mr. John Moores, on September 3, fourteen active members being present, and Mr. Johns H. Janney in the chair.

Messrs. R. John Rogers, W. D. Lee and Thos. A. Hays, were appointed to inspect and report on the condition of Mr. Moores' stock and premises. Upon the reassembling of the Club Mr. Rogers said he was glad to be able to give a very favorable report of Mr. Moores' farm and surroundings. This farm has improved as much as any he knows of. His young grade cows look well, as also did his Essex pigs. His twenty-one head of stock cattle have improved very much, notwithstanding the dry weather. He noticed a cistern which Mr. Moores was building, and also saw a creamer in his cellar, which gives great satisfaction, increasing the quantity and quality of butter. W. D. Lee and Thomas A. Hays endorsed Mr. Rogers' remarks. The subject for discussion was then taken up as follows:

How to Make Farming Pay.

Mr. Moores said farming does pay. People are wrong in saying it does not. The farmer loses more time than merchants or mechanics and is then discouraged at not making money. Fourteen years ago his farm had no buildings on it. He has put up buildings and expended a large amount in bone dust. We have to count the increase in value of our property. This year he has been offered 20 per cent. advance on his cattle.

Mr. Castner said he had made farming pay. We must improve our farms by deep and thorough culture, plowing in clover for wheat and corn, and hauling manure from the stable to the field and spreading it. He has had a little of everything to sell, but has not sold much corn or hay.

S. M. Lee said, practically farming pays better than people think. Farmers are apt to count their expenses and not their luxuries. He was in favor of mixed husbandry, and farmers should bear a steady hand.

Mr. L. W. Lee said stock was his specialty in Kansas. He could make from twenty to forty bushels of wheat, and from sixty to one hundred bushels of corn to the acre, but the past season the wheat was very much damaged by the chinch bug. This insect also attacks the corn after wheat harvest. When he left Kansas corn was looking well but has since suffered by the drouth.

James Lee said farming pays. The trouble is, that farmers are apt to overlook their advantages, and to spend more money than they keep any account of. He believed in mixed husbandry. Had rather made a specialty of cattle, and had done well with wheat.

R. H. Archer said a farmer should watch all leaks. If he has anything out of repair he should have it mended and not let things go to waste. He thought a farmer should make a specialty of some one thing. If it is cattle, other things should give way to it; if hay, raise as much as you can and do not let the cattle destroy it. We are apt to overlook and not count our gardens and truck patches

J. H. Ball said he had made a living, although he had done a good deal of building and repairing. Taking into consideration the good health and many comforts, he thought farming would compare favorably with other occupations. Farming has perceptibly improved since he came to Maryland. Is trying canning this season.

A. F. Hays said by keeping different kinds of stock and by good management farming will pay well.

Wm. F. Hays said he agreed with Mr. Castner's remarks.

Wm. Munnikhuysen said farming with hard work will pay, but doubted if his farm would sell for enough, in addition to its original value, to pay for its increased fertility and expense of new buildings.

R. John Rogers said farmers are the greatest complainers in the world although they are more successful than followers of other branches of business. Some others may pay better, but they are not so safe. Ninety per cent. fail in other branches of trade. It cost much more to farm formerly than now. A boy can do more work in a day now with a mowing machine than a number of men did formerly with the scythe. And so in other things.

Mr. Janney said to sum up matters, there is nothing as safe for the money invested as farming. He has kept an account of his expenses for a year, and is certain that he could not live in the city for less than \$10,000 a year in the same manner. There are no large fortunes in farming, but a great deal of comfort and independence.

The Club then adjourned to meet at Mr. Wm. Munnikhuysen's, October 1. Subject "Clover."

Committee of Inspection—Messrs. Wm. F. Hays, W. W. Castner and James Lee.

Stock Feeding with Fruit Culture.

Another industry, says the *National Live-Stock Journal*, fast growing into great proportions, reaching beyond home consumption for a foreign market, is our fruit production. It is well known that American apples are esteemed much before home-grown apples in England, and this fruit has been conquering a much higher place in the English and European markets within the last few years. A circular of perhaps the largest dealers in American apples at Liverpool, Messrs. GREEN & WHITNEY, gives some important points in this trade. They say:

"The season just passed has seen the largest receipt of apples from the United States and Canada into this port that has ever been known, and the grand total from all parts amounts to 863,975 barrels, against 290,323 barrels last season, and 333,649 barrels the season before: but notwithstanding the enormously increased quantities, our market has at all times been in a condition to take everything that has landed in good order, at fair prices. Good fruit has always been salable and in fair demand, and the result of the season has established the fact that, with fair stock selling at 11 to 12 shillings (\$2.75 to \$3), the demand is so great as to be practically

without limit. The English crop of apples plays now a very small part in the apple trade, the demand being entirely for American fruit."

They speak of losses from improper packing and from sending perishable fall fruit; but we quote the above to show the great market for our fruit in England; and there is also an almost unlimited market for our dried fruit in Europe, and also in the hot climates of Central and South America.

Fruit raising, then, is likely to increase largely in the near future, and it is an important question to determine how far this industry may be auxiliary to stock raising. Do they in any manner conflict with each other? Fruit culture, like almost all culture, exhausts the soil. Large and profitable crops of fruit draw fertility from the soil, although less rapidly than grain cropping, but these drafts must be compensated by deposits, or the crop will cease to be profitable. Stock feeding is peculiarly adapted to compensate for the fertility carried off in fruit crops, and fruit culture and stock feeding may profitably be joined together. This is especially true of the larger fruits, such as apples, pears, peaches, plums, cherries, etc. These fruits, after being properly planted and the trees grown beyond the risk of injury, will be benefited if the orchards are pastured by young stock, and especially with calves or sheep. Calves and sheep are fond of fruit, and wormy, early-fallen fruit will be eaten before the insects escape into the earth, there to burrow till the next season. We have known many old orchards, the fruit of which had become worthless from the depredations of the curculio, to be entirely renovated, bearing large, smooth, and excellent fruit, after three years' pasturage of calves. One large apple raiser, who markets many thousand barrels per year, and pastures calves, sheep, and pigs in different orchards, informed us that the increased quantity and quality of fruit would much more than pay for all the food these animals would consume if it were purchased; besides, he finds the growth upon this stock a large item of profit. He said he had one year purchased ten calves, two months old, and placed them in a ten-acre apple orchard, which was under the plow, for the purpose of promoting the health and growth of the trees, and did not furnish much pasture. He therefore fed each calf one quart of oats and two quarts of middlings per day for four months, beginning the first of June, and in October sold them for stock calves, at a profit of \$75 on the lot, over and above the cost of calves and food. They were estimated to weigh on an average 500 lbs. per head. These calves picked up all the wormy fruit as fast as it fell, and their growth was most rapid after the defective fruit began to fall.

We know one dairyman, owning a large orchard, who, instead of pasturing calves, turns his cows into his large apple orchard as soon as the defective fruit begins to fall. To prevent them from reaching apples upon the lower limbs, or from injuring the trees, he has devised a convenient method of tying the head down to the level of the position in which they ordinarily hold the head when not grazing. A leather clasp, three inches wide, is buckled around the foreleg, with an inch ring sewed upon one side, and

a rope tied about the horns, of proper length, with a snap in the lower end to snap into the ring on the leg clasp. This does not require the cow to hold her head in an unnatural position, but prevents her from reaching for fruit, and it can be unsnapped in a moment. He finds cows the best for consuming this wormy fruit, especially if there is considerable of it; and as his principal stock is dairy cows, he saves the expense and trouble of keeping young stock, or calves, and thus can devote all the keep of his farm to dairying. He keeps no other stock, except horses and hogs. He thinks that dairying and fruit culture are peculiarly adapted to each other, for the labor of dairying and fruit culture do not at all conflict. The apple crop especially comes to market in the fall, when the dairy is at its lowest demand for labor. Of course this system of pasturage can not be carried on with young orchards, neither could cows be pastured successfully in old orchards where the branches are trained so low as is common on the prairie farms of the West. It might be good for the cows, but it would make havoc with the trees.

Some regard pigs in old orchards as the best protection against the curculio, borer, and other insects; and, as trees are usually trained in the West, they are perhaps the best kind of stock to use in connection with the orchard. They are well adapted to stone fruits, as they will eat this fruit while calves will not. Sheep are also good stock for old orchards, as they will eat almost any kind of fruit, and their droppings are an excellent fertilizer for fruit trees. Large orchards may also furnish much green soiling food for stock, and thus bring a considerable profit outside of fruit. If the farm is nearly all devoted to fruit, stock may yet be profitable; for after using all the food grown upon the farm, purchased food may be used with a profit on the growth, besides the manure produced. Stock feeding is the cheapest method of producing the compensating fertility for the fruit carried off year by year. And it matters not how large or how small may be the orcharding, some branch of stock feeding should be carried on as auxiliary to fruit farming. As grass is king, the whole business may be summed up in the four words—*grass, fruit, and stock.*

Green Manures.

How many of your readers have given rye a fair trial for plowing under, and are able to say just what it is worth to them? Not one in fifty, I venture to say. I think rye possesses some advantages, when used for this purpose, over almost any other plant. It costs little to put it in, as it can be sown on the loose ground after the corn is cut up, and covered with the harrow. It starts into growth so early and grows so rapidly in spring, that it is ready to plow under in time to produce a crop the same season if desired. I have not experimented with rye as a green manure as much as I wish to in the future, but all my experience and observation is favorable. In May, 1877, I plowed under an acre of rye on heavy clay land. The season was unfavorable and the crop of corn was poor on all the field, and I do not remember that we saw any difference where the rye was

plowed under. The field was planted in corn again the next year, and in gathering the corn in the fall we found a very marked difference in favor of the land where the rye was plowed in. This would indicate that the best effect of rye was produced the second year. The most earnest advocate of rye as a green manure that I ever met was Mr. Root, of Rockford, Ill., who was a successful seed grower, and writer for the agricultural papers. He claimed to have discovered its virtues by accident. He wished one year to grow several acres of muskmelons for seed, and could get no land that suited him, except a piece on which a heavy crop of rye was growing. He plowed it under, and the season proving to be dry, he was pleased to find that his land kept loose and moist, and produced a full crop, while on all the other land his crops were short. As long as he lived afterwards he practiced sowing rye on all land on which he could use it, and was invariably pleased with the result.

I hope sometime to see the following experiment in green manuring so thoroughly tested as to establish what it would do for land: Plow under as heavy a growth of rye as possible in May. Then sow buckwheat and plow it under in July, or the first of August, and follow the buckwheat with sowed corn. These three crops would produce a large amount of vegetable matter, and would shade the soil completely while growing, and I doubt not would be found exceedingly profitable. As it is impossible for the farmer to get enough animal manure to supply his wants, and commercial manures are expensive and often uncertain in their action, it would seem as though there is no field of experiment that promises so much as this. There are, without doubt, countless fields which would not only produce more grain in three years, if one year was devoted to a green manuring such as is recommended, but they would also be permanently improved.

To draw out and spread enough stable manure to cover a ten acre field, involves a large amount of hard, dirty work, even if you have the manure on the farm, and vastly more if you must go some miles to the village for it. All the work in green manuring is clean and pleasant, and this is much in its favor. I am fully convinced from long experience in buying manure at 50c. a load two miles from my farm that I could have done much better to have depended on green manures, after using what manure I could have saved from my own stock. For a number of years I have depended on home resources for keeping up my farm, and have grown as good or better crops than when I bought manure, and at less expense, both of cash and muscle.—W. F. B., in *Country Gentleman*.

Nitrogen as Nitric Acid.

When a large crop is obtained by the application of a mineral manure such as potash or phosphate, it is due to the fact that the liberated nitric acid is quite equivalent to the growing power of the mineral food in the soil, available for the use of the crop. After a few years application of these minerals alone, it would be found that they were less effective than when first

used; they would then accumulate in the soil, only to become the food of plants when aided by an artificial supply of nitrogen. In one of our experiments upon permanent wheat 8,000 lbs. of sulphate of potash, and the same quantity of superphosphate of lime have been applied to one acre of land during the last 38 years; almost the whole of this amount is now lying in the soil within reach of the crops, but unavailable for the use of the plant, owing to the absence of soluble nitrogen. Plants then, derive their nitrogen principally from nitrate of lime formed from the organic nitrogen existing in the soil; but if a larger amount of produce be required than this nitrate is competent to supply, recourse may be had to nitric acid in the form of nitrate of soda, or ammonia, or organic nitrogen, and the value of these substances is, in some degree, in proportion to the readiness with which they are converted into nitric acid.

The general idea that nitrate of soda acts as a stimulant to vegetation is incorrect. The action of nitrate of soda is due to the fact of its furnishing plants with one very important element of their food, nitric acid; the soil furnishes the same substance, but not always in sufficient quantities, and the question as to when it will be profitable to employ so costly a substance, is one that cannot be answered without a full knowledge of all the circumstances of the particular locality.

My experiments show that, even when little or no loss of nitrogen takes place from washing, a very considerable proportion of the amount supplied is not recovered in the crop; it is evident, therefore, that in the States, where nitrate is as costly as it is in England, and where a lower range of prices prevails for farm crops, some caution must be used in its application.—J. B. Lawes, in *Am. Agriculturist*.

Our French Letter.

Australian Wools in France.

Messrs. Editors *American Farmer*:

The French are very extensive spinners and weavers of Australian wool; it forms the basis of the woollen and silken stuffs which they export to that colony. The pure breed of French merinos, such as it exists at Rambouillet, differs on several important points from the Australian merino; the latter is less heavy and smaller; the staple of its fleece is, however, finer, in the sense that its diameter is narrower, but the Australian merino wool is less elastic and its undulations not so regular as that from the perfect Rambouillet sheep. Now Australian wool-growers aim at fineness of fleece; hence, many consider the crossing of native merinos with the best imported Rambouillets would be an advantage. Perhaps it would also tend to diminish the darker colored flesh of the Australian sheep. According to M. Bourdil, an ex-commissioner, Australia had in 1879 sixty-six millions of sheep, and exported in that year 143,000 tons of wool at an average price of 1s.04d. per lb.; in 1877 the mean weight of an unwashed fleece was 4½ lbs., and of washed, 2½ lbs. The most appre-

ciated wools are grown, according to the same authority, in Tasmania and Victoria. New South Wales in 1788 possessed only twenty-nine sheep, at present she has twenty-nine millions. To Tasmania reverts the honor of having first imported merinos from Saxony.

Review of Agriculture for the Year.

The *Société Nationale d'Agriculture* has the excellent habit to pass in review the history of the country's agriculture for each year; the *résumé* is ever the product of M. Barral, who in addition to being an able chemist, is one of the most practical minds in France, and whose long public career has ever been associated with the progress of the age. A few gleanings from that interesting document: It draws attention to the discoveries of Pasteur, who not only has found a remedy in inoculation, against the terrible stock plague *charbon*, but has pointed out that the origin of that malady is due to the burial of diseased animals in lands over which cattle subsequently range, and thus catch the animalcules or plague germs, as thrown up by worms from the pits where the carcasses have been interred. The United States are accused of having introduced the phylloxera into France; whether the charge be accurate or not the antidote has come from the same source, as the grafting of American vine stocks has been found efficacious in resisting the ravages of the vine bug. Testimony is borne to the happy results attending also the employment of sulphuret of carbon, and above all to the adoption of autumnal irrigations and rich spring manurings, known as the Fancon process, and whose author has been recompensed by an *objet d'art*. In what may be designated industrial agriculture, the cultivation of sugar beet ranks high, and its development has received a fresh impulse from the reduction of the internal duty on sugar. Connected with this progress is the now general adoption of the extraction of the juice by the process known as *diffusion*, imported from Austria, instead of the old plan of presses. The pulp resulting from the new system has been found to be more nutritive for feeding purposes. In the northern and central regions of the country, where beet culture prevails, this pulp has next to revolutionized stock-farming; agriculturists in the neighborhood of the factories no longer rear stock, they purchase the lean kine in other districts and fatten them. It is a branch of farming very remunerative as the demand for fresh meat exceeds the supply, and no danger is apprehended that America will be able to compete in furnishing live stock to the butchers. The distillation of alcohol from beet and maize, also has made important progress; and M. Savalle has demonstrated that rectified alcohol is so chemically pure that it is of no importance from what substance it be obtained.

Despite the development in the preparation of the cheese and butter industries in Denmark, England and Sweden, France continues to hold her own. It is satisfactory to observe that M. Duclaux has obtained a medal for his beneficent labors on the rôle of animalcules in the manufacture and ripening of cheese.

Respecting eggs, France not only exports millions for consumption, but for hatching too, and for the latter supplies incubators. M.

Joseph Boussingault, son of the veteran chemist, has also been honored for his researches in agricultural chemistry; nor have the national teachers been overlooked for their humble but important services. Our schoolmaster aged seventy-five, and after fifty years in harness, has been pensioned; he is happy, as he boasts, "I am going now to commence new experiments." Some local agricultural societies award premiums to the school mistresses for inculcating general notions of farming, dairy management and house-keeping, to their pupils.

This year's harvest will be inferior to last season's; wheat will represent a less yield of thirty millions of bushels; barley is fair; rye, good; oats, bad; maize, passable. On the whole, in point of cereals, France and Russia are the most famed countries in Europe. Forage is next to a failure; beet is suffering from abnormal fluctuations of temperature, but the vintage promises to be excellent in quantity and quality.

The Electricity International Exhibition

Has, from an agricultural point of view, some attractions. In principle the application of electricity is simply a transmission of force; the secret of the economic utility of that power has been found; the applications will come in due course. Professor Déhéralin exhibits his experiences on the influence of electric light on vegetation; M. Felix, on the application of electricity to plowing and threshing; M. Albaret, to the lighting of farm yards and agricultural operations, and others to the heating of incubators and the examination of eggs by electricity.

Sheep for the Cheese Dairy.

In the south of France, where the climate is hot and the country mountainous, rearing sheep for their milk to produce cheese (Roquefort) is largely extending. The best milking ewes ought to have four or six teats, the udder voluminous, the wool rare and secreting much grease, ears long, head small and without horns. Sheep with four teats ought to be sought—in the agricultural college of Montpellier there is a ewe with two lambs and yielding milk from six teats. So far the experiments have not succeeded of obtaining an animal producing much milk and a good fleece at the same time. Counting milk, lamb and wool, a ewe produces net about 48 francs yearly—six quarts of milk yield one pound of cheese. The Chillians, to obtain special skins much sought after, cross the sheep with the goat; experiments are being conducted in the end of a similar crossing for improving the milking capacities of ewes. Goat farming does not pay; the animal is destructive, its flesh held in little repute, and its offal of no value.

To combat the epidemic of typhoid fever from which horses now suffer, a veterinarian urges the use of arsenic as an infallible cure or preventive; he holds back, however, the recipe. The stable ought to be sprinkled with a solution of carbolic acid—two ounces in a quart of water. Arsenic imparts a fresh and sleek look to the coat, and in Vienna is given to make carriage horses foam at the mouth.

Up to the present the mechanical fattening of poultry consisted in storing the birds in a pigeon-hole revolving tower, and making each

shelf with its tenants pass before a man with a bucket of prepared liquid food that he injected in measured quantities, through a tube working by a treadle, into the throat of the birds.

In Italy and France the Humane Societies attempted, but without success, to put down this mode of rapidly contributing to our food supplies. An improvement has taken place; instead of the revolving tower the birds are placed, six to eight in number, under a kind of box or melon frame, and left to enjoy all the liberty they can find therein; the feeding apparatus is maintained, each bird being taken out to be dosed, and then put back to enjoy its confined "constitutional." The frame is heated to a certain temperature, that which aids the putting up of flesh.

Among the many prizes offered by the National Agricultural institution of France is one of much importance: the right of two of the most successful candidates of the annual examinations to reside abroad in the centres of the best farming districts, for three years, at the expense of the government, they furnishing reports on the farming of such countries.

F. C.

Paris, September 10, 1881.

Farmers' Clubs.

The Farmers' Union has a very good opinion of the benefits of these. It says:

"Every farmer who belongs to a real live farmers' club can always count on his bread being buttered. We do not mean by this that it is a sure road to wealth, but it is a safe one. A farmer in spending one evening in a week during winter with his brother farmers in the discussion of matters appertaining to his welfare on the farm, exchanging opinions and learning all the different whys and wherefors of his neighbors on the farm, learning how this one and that one plows, sows, harvests, and a thousand other useful and instructive facts about the farm and farming, gathers information that is worth more to him than silver and gold.

Ants as Fruit Growers' Friends.

Many of the leading orchard proprietors in Northern Italy and Southern Germany are cultivators of the common black ant, which insect they hold in high esteem as the fruit grower's best friend. They establish ant-hills in their orchards, and leave the police service of their fruit trees entirely to the tiny colonists, which pass all their time in climbing up the stems of the fruit trees, cleansing their boughs and leaves of malefactors, mature as well as embryotic; and descending laden with spoils to the ground, where they comfortably consume or prudently store away their booty. They never meddle with sound fruit, but only invade such apples, pears and plums as have already been penetrated by the canker, which they remorselessly pursue to its fastness within the very heart of the fruit. Nowhere are apple and pear trees so free from blight and destructive insects as in the immediate neighborhood of a large ant-hill five or six years old.—*Prairie Farmer.*

The Dairy.

Prevention and Treatment of Milk Fever.

One of the best methods of preventing milk fever, is to feed the cow, several weeks to several months before calving, according to its danger—if in winter, on ordinary dry hay only, with a quart or so of wheat bran, night and morning, to keep the bowels open; if in summer, let her run on a poor pasture, and at all times have a large lump of Liverpool rock salt, to lick at pleasure. If the cow has been dried off a couple of months before due to calve, watch the approach of parturition, and if the bag shows extra full, then begin to draw a small quantity of milk from it two weeks or less before her time, and increase this according to the fullness of the bag, till the calf is dropped; then milk her clean after the calf has sucked, at three equal intervals of every twenty-four hours. In the meanwhile, do not increase her feed for a month or more till all danger of fever is passed. If the cow has continued to give milk up to within a few days of the time for her to calve, as is sometimes the case, then perhaps it will not be necessary to milk her till after calving. Keep her dry and sheltered from storms and from excessive cold or heat. See that the water she drinks is pure; and that she has all she wishes to take, at least three times per day. Never let this water get icy cold, and after calving give it slightly warm for a few days.

As soon as affected, if not already in a comfortable stable, put the cow into one, litter the floor well, and always keep this dry and clean. One of the most simple and effectual prescriptions for this disease is half a pound of Epsom salts dissolved in three or four quarts of warm water, mixed with two table-spoonfuls of sweet spirits of nitre. Wet up a small feed of wheat bran with this. If the cow will not take it so, then put the salts and nitre solution into a strong-necked bottle, trice up her head and pour it down the throat. Repeat this every morning till cured. This simple remedy rarely fails, even in the worst cases, if all the above directions are carefully followed. Rub the bag with lard, mixed with the last strippings, every time the cow is milked. This renders the bag soft and pliable, and prevents the milk from caking in it.

Heifers for Milk.

A correspondent writing to the New York weekly *Tribune* says:—

The trouble of "breaking in" heifers and the difference between them and cows of some "experience" has been greatly exaggerated. After passing five or six years of age each year detracts from the value of the cow for beef, and if proper means are taken to train and select the best heifers for milking purposes; ordinarily cows should be fattened for beef before passing six years. The heifer intended for a milker should drop her first calf about the middle of

April, when she is two years old. She should be well kept the previous winter, housed and frequently handled, thus having her so gentle she can be approached at any time. When the calf is dropped the one in the habit of feeding and handling her will have no trouble in milking her. If she has been well kept from a calf the quantity of her milk will be about two thirds of what it will be when she comes to maturity, and the quality can now be determined for her whole career, as it will only change with the change in the season and the food consumed. The liability to "dry up" is no greater than with older cows. This I have tested several times. There is no doubt that in proportion to food consumed the first year the heifer will not give as good returns as the matured cow, since she is still growing, but the growth made is so much capital laid by for future use.

Last winter I milked such a two-year old heifer until within six weeks of her second calving, when I had to "dry her up" or she would have kept on giving milk in paying quantities. She is now three years old, with her second calf, and I doubt whether she ever will yield better returns. By the way, this past spring I had a two-year old heifer to drop her calf when I was absent from home. I had myself been in the habit of feeding and handling her, and left word in case she dropped her calf when I was gone for the person left in charge to be very careful in approaching her until she should perceive their intentions were not to hurt her or the calf. After returning home I found the two young men left in charge could not approach her at all. She had jumped almost every fence on the farm to get away from them, and they had not even touched her. They seemed to think I had a troublesome case on my hands. When I approached her she stood perfectly still, and so remained until I drew all her milk. The third time I milked her with both hands, putting the bucket under her. In a short time any one could milk her, and she has never been "broke" at all, does not know how to kick, and stands as well as any cow. The fact was she knew me and *believed* in me, and was willing to trust me, but she was afraid the others would hurt her calf. Kindness, patience and gentleness must be developed in cows by owners constantly exercising these virtues when caring for them.

Butter Families Among Jerseys.

Mr. T. Alex. Seth, of Baltimore, writes as follows to the *Country Gentleman* in reply to another correspondent, who had asked if he could name a list of cows of some single strain, other than the Jupiter-Alphea, that had made as much as 14 lbs. of butter per week:

"You have recently published the names of some 110 cows, bred in this country, who have come up to the 14 pounds standard. I had the curiosity to examine the pedigrees of these cows, not with the intention, however, of forestalling Col. Brown, whose work will be more thorough and of greater value to the breeders, but to see if my former opinion was justified by facts. The

result of my researches may not be without interest to your readers. Of the 110, I find—

Tracing to Splendid 2.....	20	animals.
do Pansy 3.....	24	do
do McClellan 25.....	18	do
do Albert 4.....	10	do
do the great Alpha-Jupiter combination.....	14	do

"In reply to the charge that the list is an incomplete one, I would say that as the Alpha owners are not specially noted for their modesty, and have not been very 'backward in coming forward' with the performances of their favorites, I think it fair to presume that this list shows a fair average.

"Champion of America 1567 traces to Splendid, Pansy, McClellan and Emperor 5 (to whom 7 of the 110 cows trace), consequently I think I was not far wrong when I said I would expect better results from Champion of America than from any pure Alpha. Mr. Montgomery has 15 of Champion's daughters in calf to that bull, which will calve soon. The first one, Therese M. 8364, calved in July last, and Mr. M., in a letter of Aug. 27, says: 'I think she will, when tested, make between 12 and 14 pounds of butter per week. The churning to-day of one day's milk gave 1 pound 13½ ounces.' She is only two years old. I am glad to say I have been fortunate enough to secure her bull calf.

"What surprised me most in my researches into these pedigrees, was to find 13 tracing to Europa 121. I was aware she was the maternal ancestor of many good cows, but I was surprised, I must confess, to find her pushing the fashionable Jupiter-Alphas so closely; 14 beats 13, however. Mr. Jas. W. Cox, Jr., in your issue of Aug. 4, says that in his conversation with breeders he met one gentleman who 'was very much opposed to the Alpha strain, despite all arguments to the contrary.' He said: 'I am a firm believer in advertising, and know of no instance where its benefits could be better cited than in the case of the furor for Alpha blood, for printers' ink did more to get it up than the butter qualities of the pure Alphas ever did.' Perhaps this gentleman was right, 'despite all argument to the contrary.'

"After what has been said about the blood of Countess 114, and Flora 113, in Jersey Belle of Scituate, it will surprise many breeders to learn that I found only six tracing to Countess 114, and five tracing to Flora 113."

Milking Machines.

"Many attempts have been made," says the *American Cultivator*, "to construct machines by which the milk could be drawn from a cow's bag with the same facility and completeness as it could be drawn by hand, but, so far as our knowledge and observation extend, without any practical success. It is supposed by many that the milk is retained in the cow's bag through atmospheric pressure alone, which, however, is not true, since the cow is able to control this flow to a great extent. If the cow dislikes the person employed in milking, or his manner of drawing the milk, she will not only refuse to let down the fluid, but, by persisting in the effort, will soon dry up the supply. The udder of the

cow is composed not only of a bundle of milk veins, but also of nerves. The aperture in the teat of the cow varies in size with each animal milked. In the case of some cows this aperture is large and the milk can be drawn away very rapidly, while in other cows the aperture is small, and any attempt to draw the milk from this latter class of cows as rapidly as from the former will be attended with much pain on the part of the abused animal, and a determination on her part to hold back the milk. This defect in the size of the aperture of the cow's teat is one which no machine can detect, but one which the human hand readily observes. Immediately upon its discovery the human milker relaxes his efforts in forcing away the milk. It is the smallness of this aperture which stamps the cow as a hard milker. The observant dairyman soon learns that when he draws too hard the milk passes back to the bag. In such a case his efforts must be so relaxed that the milk will come away easily though slowly. Again, when there is inflammation in the cow's udder the careful milker readily detects it and as quickly sets about with measures to reduce the inflammation and relieve the cow. By the use of no machine could such a difficulty be detected, and serious consequences might be the result of machine milking. A great many bags would be permanently ruined and many cows die of milk fever, which would be saved to the owner where milking by hand prevails. It is observed that men have not become better artisans since the introduction of machinery. Managers and overseers may now understand better the nature of the article manufactured, the raw material used and the nature of the machine employed than was the case formerly, but the rank and file—the class of men who to-day operate the machines, and who, before machines were invented, did the work by hand—these men understood the nature of the material upon which they worked better in former times than they do now. And so, in this connection, he who has to milk a cow, and do it well and properly, should know at least the character and construction of the cow's bag. In conclusion, while we are quite positive that there are a larger number engaged in milking cows who know much more than ever was known before with regard to the structure of the bag, yet we are also certain that there are a large number who do not know and who do not care to know anything about a cow. This latter class is made up of men for whom special teachers and places of instruction should be furnished, so that even the hired men could have education necessary for performing in an intelligent manner some of the most important duties upon the farm. We must depend upon hand labor in milking for some time yet, notwithstanding the inventive genius of the age."

Raising Calves by Hand.

The *Iowa Register* contains the following:—

"Some claim that there is no improvement in nature's way. It is true if the cows are never to be put to any other use than raising calves it is just as well to let their calves run with them in the natural way. But at this day who can

afford this system? By more labor and greater care just as good calves can be raised at half of the sacrifice of the products for which the cow is most valuable. Nor can farmers afford to permanently injure a cow as a milker by allowing her calf to run with her the first year. The frequent drawing of her milk by the ever present calf seriously dwarfs all her milk glands, so that ever after she has no capacity for any large amount of milk. It is very important the calves should not run with them the first year. If in good flesh and good health, for a few days it is important the milk should be drawn frequently to keep the bag from inflammation and injury. But gradually, and as fast as it is safe, the regular periods of milking should be assumed, so that the udder in its formative state shall assume capacity for twelve hours' accumulation of milk. Nor is it safe or policy to trust to the calf to draw all of the milk for a few weeks. The demands of a calf at that age are not sufficient to take all the milk of a first-class cow. Hence her yield will naturally dwindle to the demands of her offspring. Besides, after a calf and cow have been let to each other twice a day the weaning is injurious to both. Besides the weaning is frequently impossible, creating constant trouble on the farm. The practice also of keeping cow and calf separate, and admitting them together twice a day to take half of the milk, while the other half is being milked, is vexatious, troublesome, and saves no labor. Any one would rather sit down by a quiet cow and draw all of the milk than to fight with the calf for half of it. And if the milker takes the first half before the calf is admitted the cow is injured, as the milk should all be drawn when the cow lets it down. Calves should never be allowed to suck longer than three days. But they should be furnished with their mother's first milk, as nature provided just the right kind of nourishment for the first food. After feeding for a few weeks with new milk substitute skim milk. Then if the calf is too poor add oil meal, or if it is too fat for the development of the bones and muscles add oatmeal or other bone or muscle-producing food. The heifer calves which are intended in the future for the dairy should not be kept as fat as if intended for veals for the butcher. Keep them in good thriving order, with the safe development of all parts, for which purpose it requires more skill than is usually possessed by the drudge. The sooner the cow and the calf can be induced to forget each other the better for both and for those who attend to them. By the tenderest care learn both to have confidence in you. Kindness to a calf in its earliest days is never forgotten. They make quieter and better cows. And steers which enjoy your presence and confide in your care always assimilate their food better, are not half the trouble to care for, and add so much to their satisfaction by their docility and kind temper. Calves must have good accommodations for feeding their milk and grain or other food rations. Each one must be allowed its share, without being robbed by the more greedy or pushed away by the domineering. They should also be so arranged that they cannot suck each other just after partaking their milk. Plans for all these matters are well understood on a well arranged farm."

Live Stock.

Prize Jerseys at Timonium.

Messrs. Editors American Farmer :

As was expected and predicted in my letters, the competition among the Jersey breeders at the late Baltimore County Fair was sharp and spirited. Although the exhibit in this class was somewhat short, as to numbers, as compared with the show of last year, greater care was taken to select and exhibit only animals of real merit, so that the average in excellence was considerably higher. Among the number we noticed many that have been shown before, but they are such animals as the public is not apt to grow tired of. The new-comers were choice animals, and, as a rule, show that great care was exercised in their selection. Indeed, the whole exhibit was remarkably fine, and will compare favorably not only with other county shows, but with any State show which I have ever attended, either in this or other States. The gentlemen selected to judge the merits and to award premiums—Messrs. Colin Cameron and J. V. N. Willis—were gentlemen of the strictest integrity, as well as possessing great practical skill and experience in that line. They remarked in our presence that the aged cow class of nineteen superb animals exceeded in excellence anything they had ever before seen in the show ring. We would have attributed such remarks to a desire on their part to make themselves agreeable to the enthusiastic owners present, but as a further evidence of their sincerity, I will say that since the Fair I have had several letters from breeders who were not present, saying that they had heard from Messrs. Willis and Cameron of the excellence of the Baltimore county Jerseys, etc. They each expressed regrets that the Society had not offered more premiums, and thought that there ought to have been at least a third and fourth prize for the aged cow class, as so many very fine animals escaped notice for the want of more prizes to be awarded.

In the class of bulls over three years of age the first prize was again carried off by Mr. John Ridgley's bull Derby (imported), the second prize going to Mr. Robert Moore for his bull Watts. If there was any room to find fault with the judging, it must have been in this case, as we heard no complaint except in this particular. Both Watts and Derby are fine animals. Derby seems to have the advantage in horn, both as to shape, size and color—in the head generally, which is finer and on a better neck, and in coat and color of hide, while Watts excels in depth of carcass and width of loin and rump. Indeed, in this last Derby is sadly deficient, so much so as to stand with his legs crossed. Derby has perhaps the advantage in escutcheon, although many of our breeders say they would expect better results from Watts's immense horizontal escutcheon than from Derby's moderately high one. Altogether they are both excellent animals, and we think there was no reason to accuse the judges of unfairness or of incompetency.

In the next class, bulls between two and three years, there could be but one opinion, as Mr.

Andrew Banks' noble bull, Lord Rex, was admitted on all sides to be the best bull on the ground of any age. The second premium went to Mr. S. M. Shoemaker for Hazelnut, a miniature shorthorn ready fattened for the shambles. Lord Rex was pronounced by all breeders present the finest bull in every respect ever shown in Maryland. He is a superb animal, fine in head, horn, neck; deep in carcass, of a rich mahogany on back, shading off to black, with the richest color in ears, on scrotum, &c. And when we consider his excellent pedigree, being a descendant of Splendid 2, Pansy 8, McClellan 25 and Albert 44, a combination which has produced two out of the four cows for which a weekly record of 23 lbs. butter is claimed, and a third which has made 18 lbs. in her two-year-old form, too much cannot be said in his favor, and we heartily congratulate Mr. Banks on being the owner of such an animal.

In the class of bulls between one and two years Messrs. Clarke & Jones secured first on their bull Jewel Rex, second going to Mr. Von Kapff, for Saturnalia. These are two very promising young bulls with excellent pedigrees, the former tracing to the combination above spoken of with the addition of the blood of Favorite of the Elms and Europa 121, the latter to Alpha, Edith and Echo, all fine animals.

Jewel Rex will, in our opinion, be the progenitor of some fine deep-bodied heifers, and is well worthy to head the herd of fine able-bodied cows of Messrs. Clarke and Jones.

The first prize for bull calf went to Mr. Banks for a very fine calf by Watts.

The largest and most hotly contested class was for cows over three years of age, the first prize being carried off by Mr. T. Alex. Seth's superb young cow Arawana Buttercup, a cow that from the tip of her muzzle to the end of her tail seems to be without blemish, a cow that with her third calf for one week averaged 49 lbs. of milk per day, and in seven consecutive days made 15 lbs. 5 ozs. of butter without forcing. The second prize in this class was carried off by Owanda, the property of S. M. Shoemaker, a very fine cow, much older than Arawana Buttercup, and one of which it is said that she was purchased by her owner for show purposes, and that she was the winner of seven first prizes at New England shows, never having been vanquished until she met Arawana Buttercup.* Like Hazelnut, Owanda lost much by being led into the show ring too fat, while Arawana Buttercup was in very fine show condition, although pronounced by some poor in flesh. Among the animals in this class which were deserving of some mention were three very fine ones of Messrs. Clarke & Jones—Lida, Pearl and Datura—all too fat however, and Mr. Von Kapff's Princess Gentian and Mr. Ridgley's Nona.

In the class cows between two and three years Mr. Banks' imported "Jollie" carried off first and Messrs. Clarke & Jones' "Tint" second, both fine animals.

In the class heifers between one and two

*We think X is misinformed on this point. Owanda has never, as we believe, been exhibited at a Fair before.—Eds.

years Mr. Banks again carried off the honors with his exquisite little Duchess of Chatsworth, fifteen months old, a daughter of Arawana Buttercup, and Mr. Seth second with Rival's Flora. Little Duchess was the admiration of all lovers of Jerseys, and was the pet of the show. For beauty of head, hair, shape and color of hide she is perfect, and indeed in all respects an extraordinary animal, and one for which her owner had to decline large offers to retain. Besides being out of such a remarkable cow as Arawana Buttercup she is a descendant on her sire's side from the Rex family. Rival's Flora is a very promising animal, remarkable for the exceeding richness of her horns as well as for perfection in shape of udder.

For heifer calves under one year Mr. Banks received first on one of Lord Rex's daughter, a beautiful animal, and who attests in her excellence the value of her sire.

Mr. Banks led into the show ring when the herds were to be judged three animals wearing the blue, and it was impossible to beat him for herd prize, although the judges say they were sorry not to have a second prize to have given Messrs. Clarke & Jones for their very fine herd.

Mr. Banks, who has been breeding Jerseys but little over one year, is to be congratulated on his remarkable success at his first fair, having carried off five first prizes and the herd prize. But we would suggest to him that while he certainly had some very strong points in his herd he had some very weak ones, and that he could with profit weed out some of the animals therefrom—Lord Rex deserves better company.

While not exactly *apropos* to this article we would say that Mr. Watts' display of Guernseys was a full realization of our predictions in the August number. X.

Sheep Raising in the South.

To the *Farm and Garden*, Mr. P. H. Foyner, of South Carolina, writes as follows:

Our farmers at last seem to have been awakened to the adaptability of this section of country to the raising of stock. A few successful breeders have shown them what can be done, and aroused a lively interest in the development of this branch of industry. Very little attention has been given to it heretofore on account of the depredations committed by thieves and dogs.

Sheep raising, especially, seems to be gaining ground, and many farmers are introducing blooded stock in their flocks, among which are the Cotswold, Leicester, Southdown and Merino. A cross between the Leicester and Broad Tail, or African, is the most advantageous one I ever tried for this section of country. It produces mutton of most delicious flavor, making it very marketable. The lambs at four months weigh from fifty to sixty pounds. The wool of this cross is of a superior quality for the manufacture of common goods which are in great demand at the present time. The wool sells on the farm, unwashed, for from 23 to 26 cents per pound. The average yield is from 4 to 6 pounds per head when the sheep are kept on common pasture. They are small boned and when properly

cared for take on solid flesh very fast. The ewes make careful and gentle mothers, and are very fond of their offspring. The lambs come on early, are very heavy, and command a good price. Pasturage has much to do with the value of the fleece, as it increases in bulk and length when the sheep are kept in good and nutritious pasture.

Sheep are very efficacious in clearing up new grounds, as they will devour all briars and shrubs that may fail to be removed by the plow. They delight to browse on burs, especially those of the small pines so densely scattered over this section, and after a few years of pasturage on lands they will have enriched them so much by their droppings as to make them suitable for planting purposes.

I always make a practice of visiting my sheep about once a week at all seasons and salting them with my own hands. Consequently they have become much attached to me, always following me over the pasture.

The extreme cold of last winter played sad havoc with the flocks in this vicinity, one farmer losing 700 head, not being prepared for the severe winter. I only had 115 head and lost 35. Seldom lose a sheep from sickness, for on the symptoms of disease being manifested, I always remove the affected one, consequently the disease never spreads.

Sheep should be tagged regularly and kept clean. They should be culled every year, and those in any manner deficient in form or age should be put in a separate pasture and fattened by the butcher.

There is more profit to be derived from sheep raising than any other venture. Sheep will take care of themselves in this section ten months of the year, leaving only two months to be cared for, and costing on an average from 20 to 25 cents per head the year around. Feed them principally on cotton seed and peas.

The account with my flock of 60 ewes this season has been as follows:

Cr.	
By 45 lambs to butcher, at \$3 00.....	\$135 00
248 lbs. of wool, at 20 cts.....	49 60
	\$184 60
Dr.	
To purchase and care of stock, &c.	
60 ewes, at \$2 50.....	\$150 00
2 bucks, at \$10 00.....	20 00
Loss of 4 ewes, at \$2 50.....	10 00
Feed for winter.....	16 00
Shearing.....	2 00
Attention to stock.....	20 00
	\$218 00
Stock on hand.	
56 ewes, at \$2 50.....	\$140 00
2 bucks, at \$10 00.....	20 00
9 lambs, at \$3 00.....	27 00
	\$187 00
	31 00
Profit.....	\$153 60

MR. EDW. B. EMORY has sold the following Shorthorns: To J. M. Elliott, Talbot Co., 2nd Imperial Red Rose, \$200; to C. Wright Spry, Kent county, Mollie 5th, \$300; Lady Grace, Md., \$250, and Queen Anne, \$200; and to Mrs. E. R. Wicks, of Kent, Bellas Duke, (2 mos.) \$75.

Pleuro-Pneumonia.

The commissioners appointed to investigate the causes of the propagation of the cattle disease known as pleuro-pneumonia, met at the Sherman house, Chicago. A large number of communications relative to the disease were read, but it was not noticeable that all of them were from eastern points. In fact, Dr. E. F. Thayer, of West Newton, Mass., as well as Prof. James Law, of Cornell University, stated freely that such a disease as pleuro-pneumonia did not exist among the western cattle. They say the disease is contagious, but that all investigation shows that it is brought here by foreign cattle. The farthest place west where the disease has penetrated is Elmira, N. Y., and even at that point there was but one case, while there are doubts even there that it was a genuine case of the dreaded disease. Prof. Law is firm in the faith that the disease is contagious, however, and in his view he is indorsed by his associate. As proving the fact the latter says that under the direction of the Governor of Massachusetts stables thoroughly ventilated were built, and cattle some distance away caught the infection from the animals purposely introduced. The gentlemen cannot believe that either swill feeding or close quarters have the least to do with the disease, and would impress upon the public that the thing to do in the premises is to stop the probable spread of an imported infection. Dr. Thayer says he has no statistics upon which he might state that any particular breed of cattle brought the pneumonia to this country, but he considers it of the utmost importance that its ravages should be checked at the earliest possible moment. The commissioners will endeavor to impress upon the dealers the fact that the cry of diseased cattle from the cause mentioned is costing this country not less than \$2,000,000 per annum in England alone.

Soak Corn for Hogs—How to Do It.

During the summer months corn gets hard and dry, and if it happens to be a rough variety, hogs will eat no more of it than will keep them in decent living condition. At such a time it is profitable to soak the corn, as by that means we partially restore it to the condition of the roasting ear, and every farmer knows that it is the time that hogs will grow or fatten to the best advantage.

There is no doubt that corn in the process of hardening, undergoes some chemical changes; how these changes occur may be left to chemists to explain, but that sugar may be formed into starch, and the starch into sugar, in the animal economy, and that both are convertible into each other, is evidenced by a line of facts that are indisputable, although hard to explain by their chemists or physiologists, but that there are grounds for such an opinion, is shown by the fact that the sap as it ascends the stock above the ear is very sweet, in fact, sugar and syrup are largely made from the juice of corn stalks, and also that the starch of corn can be and is extensively manufactured into an inferior grade of sugar (or glucose) by digesting the starch with

sulphuric acid, both facts exhibiting sustaining evidence of this convertibility and reconvertibility.

By soaking corn that has become excessively hard and dry, we restore it in a measure to its normal state, and put it in a condition easily to be masticated and rapidly digested, and there hinges the whole question; the more rapid the digestion the quicker is assimilation, the more rapid assimilation, the faster does the animal arrive at maturity to fit it for market.

We are satisfied by repeated trials that soaking corn is preferable to grinding or cooking; both the latter processes are expensive and waste a good deal of time. By feeding soaked corn, a little milk and green feed, it is an easy matter to make pigs at seven or eight months old, weigh 250 pounds, and turn them off by the first of December, thus saving a great share of the wintering—an item of considerable importance.

Corn can be soaked in a tank constructed for that purpose, where a large number are fed, but on a smaller scale, kerosene casks can be used, costing in this market 75 cents each. They may be quickly cleansed by taking out the head and throwing in a few old newspapers and touching a match to them. When it gets into a good blaze and begins to crackle pretty lively, turn the cask up side down, and the blaze will be extinguished for want of air.

Two such casks will hold corn enough to feed two days—four feeds—for twenty shoats, soaking each cask full of corn twenty-four hours. If you are desirous of pushing forward your fattening hogs while they bring a good price soak your corn.—*Kansas Farmer.*

Prizes Won by Mr. Fulford's Berkshires.

Mr. Fulford writes us, September 20, that his herd has won the following prizes so far this season:

At the great fair of the Northwest at Minneapolis, Minn., sweepstakes, seven first and five second prizes.

At the Chicago Fair, sweepstakes, five first and two second prizes. Winning at both places in every class shown for, and against very heavy competition.

The herd was to go the following week to Peoria and thence to St. Louis.

Epidemic among Horses in Baltimore.

The *Sun* reports disease existing among the horses in this city which threatens to interfere seriously with business. It says:

"The Citizens' Line Railway is the greatest sufferer so far, about seventy of three hundred and fifty horses being disabled, while many less seriously affected are worked lightly. Mr. Jas. S. Haggerty, president of the line, states that scarcely a horse owned by the Citizens' Com-

pany is entirely free from the disease. The animal affected first shows weakness, declines to take food, the pupils of his eyes become discolored, the lids inflamed, and the tongue shows evidence of high fever. In some cases swelling and stiffness of the limbs ensues, this being a serious symptom, and most frequently is worse in the hind than in the forelegs. The only fatal cases that have occurred in the city are four at the Citizens' Line stables. Mr. Haggerty thinks the disease is not 'pink-eyes,' an affection formerly quite common among horses, but the symptoms closely resemble that disease. The difference lies principally in the fact that the present trouble yields readily to treatment, especially if promptly applied, and the horse given rest and placed in the open air. Mr. Haggerty is also of opinion that the introduction of the disease into this city can be traced to a lot of horses brought here from an adjoining State and sold into different stables, several of which are now the heaviest sufferers, among them the Citizens' and Geigan & Co's.

"Mr. William Brower, manager of Messrs. Geigan & Co's stables, pronounces the disease 'pink-eyes,' and states that in 1842 it was epidemic on the National road, raging with great violence among the splendid horses then used on that thoroughfare. In many cases the disease 'pink-eyes' developed into 'glanders' and 'button farcey,' the latter an incurable eruptive disease, and, their cases being considered hopeless, large numbers of the affected animals were led off into the woods and shot, in order to prevent contagion. In Geigan's stables forty-three out of seventy-two horses owned by the firm have had the disease, but a number are now convalescent and none have died. The symptoms, as observed by Mr. Brower, are refusal of food, swelling and running at the eyes, which are nearly closed in a few hours, very hot tongue, indicating internal fever, stiffness and enlargement of the limbs and joints, and an indisposition to move. The disease has yielded in all cases in Messrs. Geigan & Co's stables after a few days of rest and treatment.

"There is a large number of horses in private stables in the city suffering from the epidemic, but no fatal cases are known. There has been as yet no serious interruption to business except on the Citizens' Railway, where the cars are now running at longer intervals than usual, consequently entailing greater strain on those horses still at work. The horses of the Seventh-street Railway in Washington are said to be similarly affected to those of the Citizens' Line. The epidemic is believed to be due to the long dry summer, which has affected man and beast alike, but with the disadvantage to the horse that man seeks refuge from the heat and weariness by riding, thereby increasing the brute's burden in exact proportion to the oppressiveness of the season."

TO REMOVE THE SMELL OF NEW PAINT. Newly-painted rooms are very unpleasant for several days, but if a handful of hay is strewn on the floor upon which is sprinkled a little chloride of lime, after a couple of hours the offensive smell will have entirely disappeared.

The Poultry Yard.

Drainage.

Suitable means must be provided in our fowl-houses to secure protection from dampness of all sorts, if we would attain the highest returns from our stock. It is an easy matter to dig a trench and fill it with rough stone, laid so as to form a rude drain, and when we have done this we have furnished a better preventive of gapes, roup or cholera than can be found in the poultry *matéria medica*.

Dampness is at the root of nine-tenths of the poultryman's losses of all sorts, either direct or indirect. Roup in fowls is the counterpart of diphtheria in the human subject, and is contagious wherever found. Let a single roup fowl be confined in a coop partitioned off from the main house and affording no opportunity for the transmission of the poison, save the atmosphere, and see how long it will take to infect every bird in the flock.

We do not, of course, lay the blame of the infection solely to the imperfect carrying away of dampness from the floors already surcharged with poisonous matter, but we can truly charge to that account a goodly share of the trouble. Proper drainage, although it might not have entirely obviated the necessity for an extended course of roup pills and minor remedies, would, by keeping the ground in a porous and friable state, have opened the way for the discharge of effete matter in its proper channel.

All this time, however, we have only been speaking of what may happen when the disease has once invaded the yard, and have ignored the greatest benefit of a drain—exemption from disease. Kindred diseases of men—diphtheria and typhoid fever—have been shown so clearly to be the sure results of foul drains and sinks, and the noxious gases that exhale therefrom, that all such forms of diseases may be *a priori* considered to come from lack of proper means of removing active poisons beyond the possibility of harmful action. If this is true of a disease among members of the human species, is it not, to say the least, likely to be so with a similar agent affecting our fowl stock?

Security can be very nearly absolute when, to the other conveniences of the fowl-house, we add the necessity of an efficient drain. We may escape disease without a drain, but with it our chances are multiplied more than a hundred fold.—*Poultry Yard*.

Carbolic Acid.

As a deodorizer and disinfectant, in fact as a general purifier, carbolic acid stands unrivaled. Until its virtues were discovered, we were often at a loss to know what to use for this purpose. When properly diluted and prepared, it is good for sores, and for the bites of insects, neutralizing the poison. In the proper management of poultry it plays a very important part, and when once tried its use will never be discontinued. In cases of scab-leg or poultry-itch it will effect a cure by driving away or killing the minute

insects which occasion the trouble, but must be used sparingly, only once or twice, and then only when diluted with about one-half its bulk of water. When sprinkled over the floor of the hen-house, after each time it has been cleaned, it will remove any bad odors and will purify the house. It can be rubbed on the roosts and roosting benches, sprinkled (moderately) in the new-made nests, and mixed with the whitewash, in all cases being very beneficial in ridding the house of any unhealthy odors and in disturbing and driving away the insect enemies which cling so persistently to both the bodies of the poultry and to the inside of the house and the nests.

Buying Fowls.

The time is close at hand when many of our new beginners and amateurs make their annual purchase. In the fall is a good time to buy stock, as breeders have more on hand than they care to winter over, and the early hatched chickens are so well advanced that both seller and buyer can with tolerable accuracy judge of their merits and demerits. Wintering over large flocks of fancy fowls is considered not a very wise policy. They require a great deal of care, more houses and runs; danger of contracting disease and endangering the breeding stock, on which so much labor, expense and care has been given, are obvious reasons why breeders would be more inclined to dispose of their surplus stock at fair prices. Those purchasing young stock in the fall should not mate them in the spring. Better get a two-year-old cock for your pullets, or *vice versa*. The progeny will be hardier, stronger, and make better layers. The organs of reproduction are not fully matured in cocks while other parts are undergoing development. Cock-crels not hatched early, but brought to a large size by forcing, are too soft in tissue, bone and muscle, and if mated with young hens or pullets a feeble offspring is apt to follow. Breeders who have any young or old fowls to sell should advertise them in time. Buyers and sellers ought to be better acquainted and know more about one another, and in this way the poultry interests of the country will be kept up during the whole year.—*Ind. Farmer*.

The "No-Water" Plan.

I made up my mind to try this this season, so I withheld water from them till they were four weeks old, and I have lost but two chicks this season by disease.

I have fed the same as formerly, their soft feed consisting of corn and oats ground and small potatoes boiled. This I moistened just sufficiently with milk or boiling water, to cause the particles to adhere to each other, so that the chicks can eat it. This contained all water that I gave them till four weeks old, and a healthier lot of chicks I never saw growing up, and this I know is due to the practice of the "no-water system."

I know these conclusions will meet with many unbelievers, especially among those who persistently cling to the old habit and deep-seated pre-

judices. As men differ upon the most ordinary topics of conversation, it is not to be expected that they will all suddenly abandon preconceived ideas, and rush with alacrity to accept the views of others upon this subject, however forcibly such views may address themselves to their reason and better judgment.—*Cor. Poultry Yard.*

The Apiary.

Bee Notes for October.

Do not put another day off preparing for winter. Every colony that has not at least twenty pounds of stores in the hive should be fed up to that amount at once, and in as short a time as possible, in order that the bees may seal it up. If honey is not convenient to feed, make a good syrup of pure, unadulterated sugar and feed from the top, under the surplus honey cap, by using a quart feeder with float to prevent the bees from drowning. Straw cut up and placed on top the syrup will answer the purpose. For fall feeding I prefer the large square feeder with the splint float to all others, but the Simplicity, Shuck, Manum, Van Dusen and others will answer the purpose.

Examine every hive carefully and see that the combs have a passage through them about two inches below the top bar. If not, cut out a hole an inch square in each. Two such holes in every comb would be better; the bees will have a chance at any time during the winter to get at their stores, in whatever part of the hive they may have placed them.

Keep the brood together in making your fall "fixing up," and place the frames containing the most honey nearest the bees. Those using the Langstroth frame will find the bees will winter stronger by taking away two frames and inserting a division board on each side of the remaining eight combs, thus forming a dead-air chamber on each side the bees, through which the frost cannot penetrate. By making a front shutter to just fit in the portico of the Langstroth hive, cutting out a corresponding slot on one edge for the bees to enter, a like chamber will be formed at the front, while the back can be protected with a board staked within a few inches of the hive and the space filled in with hay, straw, leaves, or any material to afford protection.

The front shutter mentioned above has other valuable points. When winter sets in, invert it and the mice cannot gain admittance. The fly-hole is shaded, and the bees show no uneasiness when, after a snowfall, the sun shines bright, which every bee-keeper knows causes them to fly out, and thousands perish in the snow. No ice or snow can close up the entrance and cause suffocation. All is secure, all quiet, and all fears of loss dispelled; and with the essential requisites, "plenty of bees and stores," out-door wintering on their summer stands becomes a success.

Confined air, or dead air, has been known for ages as a sure and safe protection, in foreign countries as well as in our own country, and will hereafter become the remedy for winter losses.

This is a favorable time to remove hives; also to transfer from "box" or "bee gums" to movable frame hives, and with care the operation can be easily and successfully performed without loss of bees or honey, and safely wintered. Unite the small colonies with others, and do not attempt to carry a weak colony through the winter. It is a noted fact that two or three swarms united in autumn in one hive will consume no more honey than the smallest one left to itself. In uniting, lay aside the spare combs for use in the spring, but protect them from the moth and mice. Some colonies will have too much honey; exchange frames with them that have not enough, and place the empty combs from the poor hive in the centre of the strong ones. Some prefer to have the empty combs near the side and the honey in the centre, but from close observation I have found this a mistake. It matters not where the honey is if within reach of the bees and the temperature of the hive is such that they can reach it. Fill the cap or upper story with straw, leaves, old rags, ground cobs, or any absorbing material, and see that each cap has a hole in the side on end near the top to allow the escape of all moisture from the bees. Contract the entrances as cold weather advances, and when the bees cannot fly let them alone. Disturbing them after cold weather sets in almost always will be followed by severe losses before spring, so whatever is to be done do at once. L.

Sunny Side Apiary, Baltimore.

Care of the Buggy.

We lay it down as an axiom that the farmer who cannot afford a cover for his implements and vehicles has no business with a buggy.

A buggy is too frail and delicate to stand heat and storms. The buggy must be kept housed when not in use. When brought out of the house it should be dusted off with a feather duster. If it comes home muddy it should be cleaned before putting in the house. It may be inconvenient, but in the end it will pay. There is no need of taking it to a creek, and there attack it with the old scrub broom. Take a bucket or two of water and a sponge and gently wash the top, then the bed, and wring out a chamolais and wipe so no water stands on the varnish. Wherever water dries on varnish it will lose its lustre. A bucket and a sponge and chamolais and feather duster are as necessary adjuncts to a farmer's buggy as a wrench.

A careful man will have his buggy look neat and last three times as long as the class first named. The average farmer can ill afford to buy a buggy and harness for pleasure. And neither he nor any other farmer can afford to neglect and destroy them.

Wastefulness treads on the heels of extravagance, and the model farmer will not tolerate either on his premises.—*Ex.*

It is estimated that the grain crop of Nebraska for 1881, will aggregate 105,000,000 bush.; an increase over 1880 of fully thirty per cent.

Horticulture.

Pea Vines as a Mulch for Strawberries.

Messrs. Editors American Farmer :

As materials for mulching strawberries are not always to be had in sufficient quantity, and the vines generally require winter protection in all the States north of Virginia, and frequently in Virginia, we recommend the following plan as not only sufficient for winter but with little adjustment secures the berries from being soiled and spoilt with dirt in spring:

Have your rows, say three and a half feet apart (for horse-cultivation), and from twelve to fifteen inches distant in the row, set the plants in either spring or fall in straight furrows filled with *well-rotted manure*, or use bone flour. Early in May, or as soon as the soil becomes warm, run a single-shovel furrow between each row of strawberries and drill your peas. The Gray Mountain or other sorts that have short runners are best, cultivate with coulters, or use only one coulters of the Double Shovel Malta Plow. The pea vines will soon grow up and shade and retain the moisture so necessary for strawberry plants, and the cultivation answers for both crops; but it should be thorough, and *crab-grass and white clover*, so troublesome in strawberry culture, should never be allowed to get a start. In the fall and by early winter the pea vines are partially decomposed and broken down, with a little adjusting they may be placed over the strawberry plants so as to afford sufficient protection. In the spring when it is so necessary to secure the berries from dirt it requires but little labor to place a portion of the pea vines under and around the strawberry plants, which also helps to retain moisture and facilitate the vigor and growth of the strawberries, and this mulch continues to decompose and adds to the fertility of the soil J. FITZ.

Kensick, Albemarle Co., Va.

Pleasure Grounds and Greenhouse— October, 1881.

By W. D. BRACKENRIDGE, Florist and Nurseryman,
Govanstown, Baltimore Co., Md.

Ever since we began to blend black with white for the *American Farmer* we made it a rule never to criticise or review any communication tendered you by others for publication. But after reading the able article on page 311 of your September number, on "Tree Pruning," by R. S. Cole, we are constrained to set aside our resolve. And on the foreground of what we are about to say on this subject, we would ask every farmer who owns an orchard—and no good farmer should be without one—to turn to this paper and read it carefully, and store away in his mind the suggestions therein set forth, so that in due season he may put them into practice.

Nearly one-half of all the fruit trees in Maryland have been irredeemably injured by what Mr. C. terms "tree butchers," or charlatans who

wheel the farmer into an agreement to prune his fruit trees by telling him that they received lessons in the art from Mr. Downing, or that they had pruned Colonel Wilder's great pear orchard in Boston. On the head of this bargain is clinched. Then with saw, hatchet and knife the empiric gets at the trees, cutting and slashing, causing them to become so thin at top that "scarce two crows could lodge on the same tree."

Not over one hundred yards from where we write there is an apple orchard which, ten years ago, was in a very flourishing condition, but the property changed hands and the new owner must needs make some vital improvements, and in order to begin—as he thought—right, he hired one of the aforesaid "tree butchers," who pruned effectually to kill, and to assist him in this, and following close after the pruning, the whole orchard was plowed up as near to the trunks of the trees as the singletrees of the plow would permit, thereby trimming both roots and branches effectually at about the same time. And the result is that many of these fine trees are now dead, and as many more very sick. No orchard, after the trees get into a bearing condition, should have a plow run nearer to the trunk than the distance to which the branches extend.

Mr. C. recommends starting his peach trees so as to form low heads, and we add that pear trees should be started, or treated, pretty much in the same way. Ten years ago we planted sixty kinds of standard pear trees on both sides of a walk leading half way through our nursery grounds. These on planting we cut back to about three feet above the ground, all of which grew and made fine heads the first year. We did not thin out the shoots made during the summer, believing that summer pruning exhausts the energy of any young tree, but simply in early spring we cut away all save four to five shoots, and these we shortened back about half way to a bud that pointed outwards. The two following springs we repeated the adjustment of the head. Since then neither knife nor saw has been put on them save to cut away some branch that crossed or chafed another.

Pear trees require little, and in some kinds no pruning from the fourth year after planting, save what we have noted above, and these same trees are, many of them, fifteen feet high and as many feet in diameter, bearing bushels of fine fruit down to the ground.

The same reasons Mr. C. now gives for starting his fruit trees with low heads suggested themselves to us on starting our pear trees, viz.: That the fruit is not subject to be blown down by high winds, and at the same time is more easily gathered; but the most important reason is that the low top shades the trunk of the tree from the scorching rays of the summer sun.

Some stickler about propriety may object to the foregoing remarks as not being exactly appropriate under the caption to this article, but we claim that the butchery practiced in the pruning of fruit trees is also perpetrated to a fearful extent on ornamental trees meant to adorn our public squares, parks and avenues. People should view an arboriculturist as something else than a mere hewer of wood. He ought to constitute himself an assistant to Na-

ture. He ought to study her laws and put her teachings into practice as far as his shallow reason or imperfect observation may discover.

Where the patching up of bad spots, or laying down of new lawns or grass plats is necessary, then this is a good time to perform such work, as grass sods laid now will soon take hold, provided the ground beneath has been deeply plowed and well pulverized, and after the sods are laid and well beaten down, then give a thin top-dressing of a compost of ashes and earth, thus filling up the chinks and hollows; and after rolling it well in spring it will be found that this new-laid sod will start up as fresh as the old lawn.

Summer floods will in many places have washed out ruts in roads and walks. Any such damage should be repaired at once, and the cleaning of gutters and other water conductors ought to be attended to before winter sets in.

There is usually an underground drain leading from the dwelling to some low spot not far distant, and this drain, if not properly attended to, proves very offensive by the fetid vapor which almost always arises from such conductors in hot weather, causing sickness among children as well as grown persons. All such drains should be well ventilated; otherwise the carburetted and sulphuretted hydrogen gases thus engendered will find their way into the sleeping apartments. Flushing such drains is not sufficient, while the application of unslacked lime and charcoal will, in a degree, modify the bad influence.

We now turn to things more agreeable to write about, and the first thing brought to our recollection is the varied shades of color which the various kinds of forest trees put on about this season of the year. The forests of no country that we know of are dressed out in such a harlequin garb as those of the United States. Bronze, orange, red and yellow are the tints she most largely puts on.

Then lowering the eye from the forest tops to the meadows and woodlands, you find them clothed with Golden Rods, Starworts, and numerous varieties of the Sunflower tribe, the most of which produce yellowish flowers. And just here we make the observation that the flora of the United States furnishes fewer plants that produce white flowers than any country we have visited.

Greenhouse.

All prudent plant-growers will by this time have their glass houses in such a condition as will enable them to move under cover on short notice any tender plants liable to be injured by cold rains or frosts, but avoid overcrowding the house with plants early in the fall, remembering that a long winter is to be passed through; therefore such hard-wooded articles as *Acacias*, *Pittosporums*, *Laurestinus*, and even those kinds of *Camellias* having colored flowers, can all remain out of doors for two or three weeks later, provided they are kept in a sheltered situation.

We here repeat in part what we said last month, viz.: that it is better to lift and pot now any plants of *Bouvardias*, *Geraniums*, and similar articles that have been grown in the open ground during the summer, rather than to run

the risk of their getting touched by frost. Such plants at first should be kept in a close, partially shaded place for at least one week, or until the roots begin to take hold of the earth.

Such winter-flowering vines as *Bignonia venusta* and *Passiflora alata*, with its varieties, should not be permitted to overshadow the other plants beneath them too much, as a good supply of light is essential to the well-being of plants during the winter.

So soon as *Hyacinths*, *Crocus* and *Tulips* have filled the pots with roots they may then be moved into a position where they will receive light and heat. Never bring such bulbs into heat until the pots are well filled with fibrous roots; otherwise you will have short-stemmed flowers without foliage.

Avoid applying fire heat as long as possible, as it is better to use the heat of the sun by closing the house up early in the afternoon.

It is very desirable to have a cemented tank or hoghead sunk underneath the stage, so that water falling on the roof may be conducted thither. Such water is preferable to that from a pump, and then it can always be had at a proper temperature.

Flowers for the Table.

Among the many pretty refinements of the table there is none more pleasing than natural flowers. Unfortunately, the use of these can be carried to the height of vulgarity. Such were the high embankments and overloaded *epergnes* which concealed the faces of opposite guests, and presented such effectual barriers to conversation. The vulgarity of such ornaments is now happily recognized, while flowers are more essential to a well-spread table than ever. These are not regarded as a delicate attention now to the presence of a guest, at least in the season of flowers, but from the accompaniment of the daily meal. Nothing is more pleasing at breakfast than a vase of freshly-cut flowers while the dew is yet on them, and to provide this may well form the graceful duty of one of the daughters of the house.

In more formal entertainments a number of pretty arrangements of flowers prevail. Among the special pieces designed for flowers are the fancy dishes in what is sometimes called *Bradley ware*. Such are the crumpled baskets with *Loves* holding the handles, and ornamented with china flowers colored after nature in relief. The imitation of flowers in this ware is carried to great perfection, and it is not expensive.

Flowers, however, are so decorative in themselves that the dish is of comparative unimportance. All floral designs are low. An ordinary round or oval low glass dish with a border of green leaves and grasses, and the flowers thickly massed, is one of the fashions that are always in season. And it may be remarked, in passing, that in choosing flowers for massing the effect is much better when the flowers are confined to but one or two colors. The variegated and spotty appearance of mixed bouquets is not agreeable. A rose basket, or a geranium basket with only shades of the same color, will present a much more artistic appearance than a combina-

tion of the two. Tea roses and heliotrope combine nicely, and scarlet and yellow flowers can be made effective. At the same time there are very few combinations that equal in beauty a solid mass of the same color.

The small bouquet at each plate is a graceful attention, and one usually highly appreciated. A few flowers in a wineglass of water are also often placed at each plate. In choosing flowers for this purpose, or for table decoration of any kind, those of too high perfume are not desirable, as their odors, with the heat of the lights and the steam of the food, are apt to be sickening. Among the fashionable flowers is the *Stephanotis*, an exotic, but its perfume is too powerful for the dining-room. Of other fashionable flowers there is the French daisy, whose centre is variegated and very striking. The florists produce buttercups now which more than rival the flower of the field. Azaleas are very popular for table decoration, as is the spiræ. Ferns are always in request, nothing presenting a better effect with the spotlessness of the napery and the glitter of glass and silver.

In the finger-bowls flowers are often introduced by sticking their stems through a leaf which floats on the water. This is a pretty custom, and finds much favor.—*Examiner and Chronicle*.

Evergreen Hedges.

The American arbutus is most planted here, but I think is not the best in all respects. The *Siberian* is more hardy, requires less trimming, is of a finer shade of green, and the plants are not much higher priced. But of all that I have seen none equal the hemlock, where the soil is adapted to it. White spruce bears the shears nicely, and if planted when small and of good shape will make a strong, enduring and compact hedge, and they are especially valuable as a wind-break. The winds and storms of winter have little effect on them, and snow and ice do not break the little twigs which so often cover the ground after a severe storm, as is the case with the Norway spruce. I have seen an excellent hedge of the Norway planted when small and about one foot apart. The growth was but a few inches a year, and they were easily kept in their proper limits. Indeed, many planters err in planting too large trees and too far apart. Young, thrifty plants, eighteen inches, and planted twelve to sixteen inches apart, do the best.—*Cor. Gardening Monthly*.

Vegetable Garden.—October.

I can remember when, in New England, it was mentioned very much to the credit of a neighboring gardener that he had "successfully wintered" so many thousands of cabbage and cauliflower plants. That troublesome practice has long since been very generally abandoned, and the New York gardeners are beginning to follow suit. Plants are raised in hotbeds very early in spring, and pricked out and properly hardened by the time the ground is fit to work. Next to planting out-doors in ridges in the fall

is not that method also the best for this latitude? So far as my experience goes plants are as difficult to preserve in frames here as they are much further north, if not more so. Last spring, cabbage plants kept over in a span-roofed house running north and south, came out beautifully, whilst those in a common frame facing southward were a complete failure. I shall fill the span-roofed house once more and trust to a hot-bed in spring for a further supply. Those who have plenty of manure and good land would do well to plant a good many in ridges and raise a second lot in spring for succession. Plants sown on or about the 20th of last month, if on rich soil, will be ready to transplant towards the end of the month. Cauliflower plants intended for heading in frames should be temporarily transplanted to a frame, or, better still, potted and plunged in it. A supply of lettuce plants should also be saved for planting along with the cauliflower. Celery in beds will need earthing up according to growth; that in single rows may get its first and only earthing—enough to straighten it—from the first to the middle of the month, depending on the bed for a first supply.

The drought has been especially hard on celery this season, killing much of it in spite of frequent waterings, but what is left will now grow finely. To those intending to make or extend their rhubarb beds I would strongly recommend trenching and manuring heavily. When the subsoil happens to be what some people consider good they are tempted to mix it with the soil proper; I have never mixed a spadeful wilfully and have no faith in such doings. The soil will not settle sufficiently until after a heavy rain, when the plants should be set 6 feet by 4, or 5 feet by 5. Mine are 4 by 4 and are much too close.

Complete Manures for the Garden.—Most of us, I presume, are glad to get hold of anything that looks like manure to eke out our scanty supply, but, to those who work their own gardens and have things their own way I would like to suggest the desirability of confining themselves almost exclusively to the use of complete manures. Barn-yard manure, when well managed, is universally acknowledged to be such, and there are artificial manures in the market that claim to be as near as may be a satisfactory substitute for it.

I can well understand why the farmer may find it economical to prefer specific manures for his grain, grass and roots; but in the garden, where the rotation of crops is so much more rapid and varied, it is too trivial to bother with anything that is not of general application. It would doubtless give a decided impulse towards the production of a good article of complete manure if gardeners, in general, were more outspoken in the matter; there cannot, I think, be two opinions in regard to its desirability.

One word more. When once your faith is established in a good fertilizer use it as much as possible in combination with barn-yard manure. In this way only can justice be done to it in dry seasons, for the manure will hold moisture for a certain length of time—the fertilizer has no such property.

The seven years of drought are surely upon us, and if Mr. Hyde had been a wise general like

Joseph of old, instead of notifying his customers, as he has recently done, that he can no longer supply them with Egyptian corn, he should now be showing them what a thoughtful man he must have been during the years that are gone.

"Making two blades of grass to grow," etc. Some attempt to attain their object by spreading over twice as much surface as formerly without a corresponding outlay. Some will sow twice as much seed in a given space, some one way and some another; but I apprehend that the taking of twice the weight of crop of whatever kind from a given area is what we should all aim at. Draining, subsoiling, manuring, thinning, hoeing and cultivating are all indispensable to complete success. Now is the best time to drain and thus lay the foundation for the operations to follow. JOHN WATSON.

The Use of Glass in Gardening for the Market.—No. 2.

Tomatoes.

In these articles I propose to take up in succession the crops usually grown in market gardens which are capable of being forwarded by means of glass, and to give what I consider the most profitable way of using glass. The importance of the tomato crop to the market gardener is such that no series of articles such as I propose would be complete without it, so at the risk of being thought to have "tomato on the brain," the present article will be devoted to this crop.

In your last number several of your correspondents spoke in a kindly manner of Mr. Massey and his tomatoes. Mr. Watson does not understand, "theoretically," why my method of pruning should hasten the fruit an hour. Well, *theoretically* neither do I, but practically I am sure it does. All of us who have grown vegetables largely have doubtless grown many fine, large tomato plants (unpruned), which at planting-out time had clusters of blossoms or incipient fruit near the top. Now, did Mr. Watson or anybody else ever know these blossoms on the top of the plants to make the earliest fruit—if they made any at all? On the contrary, were not these early clusters of blossoms always beaten by late shoots that started below? Such has been my experience.

Two years ago, when I cut down my tomato plants, I put the tops into the propagating house and rooted them. They were put out into frames at the same time the cut-down plants were, and at planting time no one could see any difference in size of the plants. At ripening time the cut-down plants were full three weeks ahead of the tops. I have also given friends plants before they had been cut down, who treated them in the usual manner, and yet were weeks behind my plants drawn out of the same box. I have no theory about it, and I hope Mr. Watson will experiment as he proposes and see whether his experience will not coincide with mine. But I am getting off the track, and fear I shall impose too long an article on you. So to the subject in hand.

In our ideal market garden we will suppose there is at least one greenhouse or forcing-pit, say 10x50 feet inside, provided with heating apparatus capable of maintaining a night temperature in the coldest weather of at least 60° Fahrenheit, without necessity for too much sitting up at night. Also that there are sashes, 3x6 feet, to the number of 250 or more, with frames provided for double the number of sashes. Being so fixed, if our land is all right we are prepared to be in the market with the earliest. We will begin with the tomato crop February 1st, though the greenhouse and sashes will not be idle up to that time, as we will hereafter show. The house should be arranged with a walk through its whole length about two and a-half feet wide, and tables on each side three and three-quarters feet wide. These not more than twelve inches from the glass at the side of the house, and the flue or hot-water pipes should be about the same distance underneath. A strip nailed on the front and back of this bench or table should be deep enough to allow a bed of soil thereon about three inches deep. Be sure always that there is an open space between the back of the table and the side of the house, to allow the heat to rise next the glass.

Having the house in readiness, we will place on these tables three inches of good loamy soil. This soil is best prepared by cutting sods from an old pasture and stacking them up, with a good proportion (say one-fourth) of cow manure, for a year previous to using. (Florists have long known the value of such loam, and market gardeners would find that a good sod stack, always kept replenished and placed under cover in winter, would be of equal value to them.) February 1st, in the warmest corner, sow seed of Acme tomato in boxes of soil very thickly, and maintain a *night* temperature of 55° to 60°. They will soon make their appearance, and just so soon as the plants can be handled lift them carefully from the seed boxes and transplant them into the soil on the tables, about two inches apart each way. A night temperature of 50° will now be plenty, as a high heat will tend to "draw" the plants.

When the plants have made two or three sets of rough leaves and begin to look crowded, go over them and cut them all down to the seed-leaves. Now keep them rather dry until they shoot apart. Pinch shoots that seem inclined to grow too fast, and above all, keep the house well ventilated in day-time whenever the temperature is above freezing. If these matters are well attended to by the first of April, there will be a nice, short, stout, healthy lot of plants ready for the frames. At this date the sashes can be taken from the frames on which they have been used for cauliflower, etc., during the winter, and placed on some of the spare frames. Take the plants from the greenhouse tables and put them in the frames, fifty plants to a sash. Protect the glass with mats for a while, and gradually harden off so as to be ready for the open ground by the end of the first week in May for this latitude. The after culture is well known.

Now, in any ordinary season an acre of tomato plants treated in this way ought to produce, between June 20th and July 10th (which last is about the date the first Anne Arundel tomatoes

usually appear in Baltimore), at least fifteen bushels of fine tomatoes (I have had over twenty bushels in the same time). For several years past the first Anne Arundel tomatoes have brought five dollars a box. Last year they brought five dollars a box up to the middle of July. So the additional twenty days will give us at least seventy-five dollars an acre. Now, a greenhouse such as I have described will accommodate plants enough for four acres, and have a warm corner to start a box of egg plants a while before the tomato plants go out. So the advance on four acres of tomatoes alone will build such a greenhouse in one season.

In a future article I will show how all the expense of running the greenhouse can be paid before the tomato plants are sown. In our next article we propose to show how egg plants can be put in the market nearly as early as tomatoes now are. Four acres of tomatoes will call into temporary use 215 out of our proposed 250 sashes.

W. F. MASSEY.

Hampton Gardens, September, 1881.

The Tomato Rot, Worms, &c.

Messrs. Editors American Farmer:

Perhaps no other vegetable has grown so rapidly in public favor as the tomato, for it seems almost incredible, yet it is true, that this highly esteemed vegetable was regarded by our grandparents as unfit to be eaten; condemned by some as poisonous, was sometimes used as a mantel ornament, and was given the sentimental name of "love apple." So far from being a curiosity they are now considered a luxury, and by many almost a necessity, and hardly a table in the land but is supplied with them. Thus their production has increased as an article of food until the supply threatens to more than meet the demand. Frequently the growers have been brought into debt of late years, but just as an overproduction was threatened a disease appeared among them known as the "rot;" so troublesome has this become that many growers are getting discouraged, some losing their entire crop by its ravages. Its cause as yet seems to be undiscovered, some attributing it to degeneration; but this in my opinion is an absurd theory; the degeneration has been forward, if anything, since they have been increased in size and productiveness with every year of their cultivation. Some writers upon the subject claim that it is identical with the potato rot, which in times past worked such mischief with the potato crop in Ireland. They claim also that the two belong to the same vegetable family, which is not improbable since the tomato has been successfully grafted upon the potato vine. Some of our most intelligent farmers think it attributable to a fungus growth upon the plant, which I am inclined to regard as the most correct theory. Being troubled with the rot among my tomato vines I several years ago sent as far as Indiana for seed, but they were worse diseased than my own. Two of my neighbors procured plants of a trucker living several miles away and lost most of their plants by disease, while those of the said trucker were entirely free from it, although

drawn from the same bed, so it could not have been in the seed in this instance. Its cause is a mystery; a patch may be free of it one year and entirely ruined the next. To those unacquainted with its nature a description of it may not be out of place: It usually shows itself upon the vines when about half grown, but it may sometimes be seen upon quite young plants; a branch, or the whole plant, will appear suddenly as though blighted, the leaves turn brown and the vines, especially near the joints, rotten. Upon examination the pith in the vines will be found decayed also, sometimes only one or several branches will be affected, but usually the whole plant is found to be diseased; the fruit upon such dries up or ripens prematurely and is unfit to eat. No remedy as yet has been discovered, but many change the location of their seed-beds each year and avoid against planting upon the same ground oftener than can be helped; this at least is a wise precaution if not a sure remedy.

The disease first appeared in this country about ten years ago, and seems to be confined to no particular section, complaints coming from all parts of the country. A prominent agricultural paper not long since offered a prize for the best essay upon the subject; and there is certainly room and need for investigation as to cause and remedy.

Not less troublesome an enemy to the tomato crop the present season has been the "tomato worm," in tobacco districts known as the "tobacco worm." So destructive have this pest become that whole fields of tomatoes are sometimes stripped of every vestige of leaves and fruit, the vines having the appearance of having been caught in the track of a great running fire. Our city cousins should not wonder any longer at the high prices they are this season compelled to pay for their favorite vegetable, when they take into consideration the present great drawbacks to their production. The severe drouth of the past summer has also had much to do with the shortness of the crop, which from the present outlook will come far short of meeting the demands of the packers.

R. S. COLE.

Harmans, A. A. County, Md.

Bacteria and their Relations to Plant Culture.

Reported by G. F. NEEDHAM.

Prof. Taylor, Microscopist of the Department of Agriculture, delivered a very interesting address at the August meeting of the D. C. Horticultural Society on the above topic.

If we examine under a high power of the microscope a small portion of the scum of a fermenting infusion of vegetable matter, we shall observe numerous particles of a globular shape, about one-twenty thousandth of an inch in diameter, highly refractive, and frequently found in gelatinous masses. These are micrococci or spherical bacteria. With these is generally found another description of germs of the same diameter, but of a rod-like shape, jointed and of various lengths. In common vegetable fermenting infusions they are seldom observed over .003

of an inch in length, and are frequently under .001 of an inch. They have generally an active motion, as seen under a high power (as have also the micrococci), and are known as rod-bacteria (from bacterion, a staff). Botanists of the present day assign both of these organisms to the division algae.

Many investigators believe that certain species of these organisms produce contagious fevers, but there certainly are other species which perform a most useful part in the economy of nature, and in many of our valued industries their active co-operation is absolutely necessary. It is well known that they are the chief agents of fermentation and putrefaction, and it is to the decomposing power they thus exert, in conjunction with the action of the elements, that all organic bodies decay and restore to the earth soluble fertilizing salts, instead of the insoluble and therefore unavailable material of which, in their unchanged state, they are made up. There is high authority for stating that organic substances are not inherently unstable. Under suitable conditions they may remain for an indefinite period wholly unaltered. It is well known that in some portions of the earth the carcasses of dead animals tend to dry up and become mummified. In the arctic region the remains of animals imbedded in ice are kept in perfect preservation for centuries. It is only under conditions more or less favorable to the existence and multiplication of the small organisms which produce fermentation and putrefaction that rapid decay takes place.

Without bacterian fermentation the compost heap of the farmer would remain valueless as plant food. The stubble and the dead grasses of our fields, and the fallen leaves, twigs, branches and trunks of trees would remain comparatively unchanged but for the chemical action excited by the same agency. Fish guano, and all unfermented organic fertilizers, must undergo bacterian fermentation or putrefaction after their application to the soil, or they will remain in a stable form, and their ammonia, locked up in the tissues of which it forms a component part, will fail to yield its return of profit to the farmer. It is asserted that the great nitre beds of India owe their origin to the action of microscopic germs, and the production of nitrate of lime by artificial means presents a similar instance of the results of bacterian action. In this last named operation animal and vegetable matter combined with lime, is laid out in great beds, and left for a period of two years, or until fermentation and putrefaction, coupled with the action of the air, have produced nitric acid, when nitrate of lime is formed, to be subsequently converted into nitrate of potash.

Some of the most beautiful colors used in dyeing are produced by subjecting lichens to bacterian fermentation; and the fermentation of stable refuse yields an even heat, which is extensively utilized in the manufacture of white lead, in the growing of mushrooms and cultivation of early vegetables. The value of the edible fungi thus produced alone amounts in Europe, Asia and America to millions of dollars annually. The utilization of bacteria, and similar organisms, in the operations of baking, brewing, and the

production of wine and vinegar, is familiar to every household.

While bacterian fermentation or putrefaction is an essential part of the process, which fits dead organic matter to become food for plants, the former appears to be an incidental source of one of the common practical difficulties encountered by the farmer and horticulturalist, viz.: the tendency of the soil to become sour. Some of the lower forms of fungi are denominated "acid formers," and the mode in which these act, will, I think, illustrate the process by which sourness of the soil is produced. If we dissolve a little sugar in water, add a small quantity of yeast fungus, and subject the solution to a suitable temperature, fermentation ensues—the sugar is converted into alcohol and carbonic acid, and in process of time the alcohol is oxidized, becoming acetic acid. As the result of some late observations, I am convinced that a similar change often takes place during the progress of those fermentations of which bacteria are the agents, and that these organisms, though in a less distinctive sense, might also be called "acid formers." So far as my observation extends, solutions in which bacterian ferments are in active progress invariably become acidulated, and I have also found that soils in which bacteria and micrococci are revealed by microscopic examination—and I find them in all soils of average fertility—give perceptible acid reactions when tested by litmus paper.

That acidity is so often produced in excessive quantities may be due in part to the character of the unmarketable substances left upon the land in the operations of agriculture, such as the stalks of corn, the stubble of the smaller cereals, decayed grasses, the fallen leaves and twigs of fruit trees, and the roots of field and garden plants in general. In all of these there is a preponderance of cellulose, which substance is resolvable successively into starch, dextrine and glucose, and from this last, as from the solution of sugar in the experiment above referred to, is ultimately produced acetic acid.

The neutralization of the excess of acid in the soil is not the least of the ends subserved by the use of lime and other alkalis in agriculture; but another means which contributes to keep its quantity within wholesome limits is thorough drainage. If the soil of potted plants be not watered with sufficient frequency and copiousness it soon becomes sour, and gardeners have learned by experience to leave at the top of each flower pot a water space of two inches, more or less, depending on the size of the pot. By filling this space with water as often as necessary the soil is kept sufficiently free from organic acids, which are washed out through the aperture below; and this is precisely similar to what takes place in any well-drained field.

I have already referred to the opinion that certain species of bacteria produce contagious fevers; but from what has been said above, it will be sufficiently apparent that this is by no means the chief function of this class of organisms. However great their baneful activity at times may be, their services to man, and to organized existences in general, are infinitely greater. Moreover the former is but occasional.

and sporadic, while the latter is practically constant and universal.

If the materials once used by the life principle in building up organic bodies could not be used over, and over again, for the same purpose, life must soon cease through the exhaustion of all that is capable of sustaining it. It is in that which has lived, but lives no longer, that life finds the greater part of its sustenance; but, as we have already seen, that vegetable life upon which all animal life ultimately depends cannot use this sustenance in the form in which life left it. Before organic matter is available for plant food, it must be reduced almost to its primitive element; and as has been pointed out, its reduction is mainly effected through those processes of fermentation and putrefaction, in which bacteria appears to be the most active and important agent.

Thus we find among those simple forms of life which are supposed to have been the first to make their appearance on our planet, and to which, if we accept the theory of evolution, even the more complex of existing organisms owe their origin, an agent which from the very inception of life upon the earth has continuously performed a function without which the success in generations of plants and animals could not have existed; and stupendous as is its work, it is an agent so minute that twenty million individuals of its class might be enclosed within a globe small enough to be passed through the eye of a cambric needle.

Washington, D. C.

American Wonder Pea.

I would say to friend Kerr that Carolina people are not in a position to insinuate that a pea which grows here only eight inches high will grow in Carolina two feet. That will do for the "marines," but we are an old salt and have been in Carolina. The fact is Mr. Kerr was sold when he bought the seed. Messrs. Bliss & Sons gave notice last winter that a spurious pea was on the market which was not the pea they had sent out as the American Wonder. The seed I sowed came directly from Bliss & Sons, and was of course genuine. It is a good first-early pea, but it is being much overpraised in the American Agriculturist and elsewhere, when writers state that it is better and more productive than McLean's Little Gem. With me the Little Gem is more than twice as productive, and although I think the American Wonder is well worth growing for first early, I do not want them after the Little Gems come on. The American Wonder is much the best pea of any coming in at same time that I have tried. W. F. MASSEY.

Work for the Month.—October.

There is little leisure time now for the farmer, who must see to the securing of his ripened harvests as soon as he commits to the earth the seed for future ones.

Wheat, if not already seeded, should be gotten in without delay, that the fall growth of the

plant may not be lost, but develop equally, root and top. This enables it to tiller, and gives it a hold upon the earth which fortifies it to resist the winter's cold. But first in order is the thorough preparation of the land, and the seeding should not be done until this is complete. If the sowing is delayed an addition to the fertilizer employed of some nitrogenous material is an advantage, as its stimulating influence will be useful in promoting the full growth of the crop, and thus make some amends for the retarded seeding. Peruvian guano, well-prepared fish scrap, ammoniated superphosphates, can be used with good effects.

Eye should have gone in earlier, but the drought has prevented seeding in many localities. Where it is possible to do it, it should be sown at once, and any addition of fertilizing ingredient and improvement in the better preparation of the ground will be found to tell in the crop.

Roots and Pumpkins should be harvested and put away before frost, and care should be taken not to let them get bruised in handling, as this results in their decay.

Fall Plowing.—The controversy as to the benefits or the reverse of this still continues, but in practice most farmers will find it to their interest in forwarding work to break up soils of a tough texture and expose them to the meliorating influence of the winter's frosts and thaws. Plant-food is made available and soluble by the influence of the season.

Lime may be applied now and give quicker results than when used in the spring. It should be put on at the surface and kept as near it as possible.

Tobacco.—The crop is about being housed, and there is nothing more to be done than to keep the tobacco houses closed in damp and open in dry and bright weather. Ground leaves should be tied up and prized as early as practicable, as they sell by far better in the fall.

Live Stock will require more attention now as the nights get colder and longer, and this attention it is necessary should be given by the owner or some one with a direct interest in its well-doing. It is worth remembering that an animal in good condition at the start will keep in good health and vigor on less food than will be required to bring it up again if it once falls off and runs down in flesh.

Be careful to give the cattle some dry food when the pastures fall off, even if it is only a run at the straw pile, and do not neglect to provide shelters against storms and high cold winds, now liable to prevail. Where pumpkins have been raised now is the time to feed them, as many are lost if kept. In feeding to sows with young pigs remove the seeds, as they are diuretic in their quality and affect them injuriously. Pumpkins are very helpful in starting hogs intended to be killed for pork this fall, but they should have also good rations of corn. This is a good season for thinning out your cows and getting rid of the poor ones. Lambs should be kept in a pasture separate from the older sheep and fed some bran or corn and oats mixed, as they need this help to the growth of their frames.

Orchard and Fruit Garden.—October.

The gathering of winter apples and pears should not be delayed too long, as wind storms strip the trees of much fine fruit which if carefully hand-picked and put in an airy shed or cool place would keep well into cold weather, when fruit is more of an object than at this season of the year; of course it cannot be expected that apples blown from the trees and bruised by the fall will keep, as fermentation soon takes place at the bruised spot which rapidly develops into rot, ruining not only the specimen thus affected but others in contact with it.

As the planting season is now approaching we present a list for the guidance of the less experienced fruit-growers who reside south of Baltimore. If we were giving a list for planters north of this city the choice of varieties would be somewhat different:

Apples, summer.—Six good kinds are Fourth of July, Early Harvest, Early Ripe, Early Bough, Red Astrachan and Summer Queen.

Fall.—Maryland Maiden's Blush, Fallenwater, Wine, Peach, Pound Sweet, Ewalt and Spice.

Winter.—Limbertwig, Winesap, Shockley, Rawle's Janet, Nickajack and Yates. Cowan's Seedling and Lankford for promising new varieties.

Pears.—Osland's Summer, Clapp's Favorite, Bartlett, Seckel, Sheldon, Lawrence and Beurre d'Anjou; named in order of ripening and cover the season to Christmas, with care.

Peaches.—We still maintain the safest plan to secure certain profit in the way of varieties for a market orchard is to begin at the earliest good kinds and cover the season completely through, planting both yellow and white-fleshed varieties that have made good reputations for themselves as reliable bearers and shippers. For a series of years the yellow kinds will likely outsell the white-fleshed ones, and then the opposite is just as likely to occur; the same may be said of early, medium and late ripening.

In Plums, outside of the best Chickasaw varieties, such as Wildgoose and a few others, there is nothing particularly inviting to fruit-growers in the section above indicated, unless perhaps the Shropshire Damson may prove an exception.

Cherries.—The Duke or sour class seem to succeed best; good kinds of which are the old May Duke, Early Richmond and Reine Hortense. Among the finer cherries the best and hardiest we have tried is the Ida; the tree has proven quite hardy and stands the hot suns of summer and hard freezes of the winter without any perceptible effect on it; the fruit is excellent too; fine size, bright red, and No. 1 in quality. The old Grafton or Yellow Spanish is, all in all, about as reliable and fully as good as any other Bigarreau or hard-fleshed kind we have tried. Gov. Wood may be classed as a good early kind.

Apricots.—If we were only planting one tree we would not hesitate in selecting Early Golden, all things considered; if a dozen trees, six of that variety would be our first choice.

Quinces.—The old Apple or Orange is all that we can speak of yet, from experience, as being of any merit. The Champion is expected to eclipse this old kind when generally known.

Now we have omitted *good kinds*, some perhaps of even greater merit than those named, for special sections and culture; but we did not set out to name *all* the good kinds of either class, only to give a list that might generally be relied upon in the section for which it is intended.

In presenting a list of small fruits the same difficulty presents itself, as there are so many good kinds to cull from. In Strawberries, Duncan and Crescent for early would be our choice, then Cumberland Triumph, Sharpless and Kentucky to fill out the season.

Raspberries.—Queen of the Market for red and the Gregg for black.

Blackberries.—Wilson and Kittatinny

Gooseberries.—Houghton and Downing.

Currants.—Red Dutch, Cherry, White Grape and Black Naples.

Grapes.—Moore's Early, Hartford, Concord, Martha, Lady, Brighton, Agawam, Wilder, Salem, and many others are good for special purposes and culture.

Rhubarb.—Myatt's Linnaens we like better than any other kind we have tried.

Asparagus, under any or all names as to variety, seems to be about the same so far as our experience goes, and with rich soil any of the so-called different kinds are good.

Premiums at Baltimore County Fair.

CATTLE—*Shorthorns*.—Herd prize, E. B. Emory; bull, 3 years, 1st, Shepherd Asylum; bull, between 1 and 2 years, 1st, E. B. Emory; cow, 3 years, 1st and 2d, E. B. Emory; heifer, between 2 and 3 years, 1st and 2d, E. B. Emory; heifer, between 1 and 2 years, 1st, Shepherd Asylum; 2d, E. B. Emory; heifer calf, under 1 year, 1st, Shepherd Asylum.

Jerseys (Herd Register).—Special herd prize, Andrew Banks; bull, bet. 2 and 3 yrs., 1st, Andrew Banks; 2d, S. M. Shoemaker; do. bet. 1 and 2 yrs., 1st, Clark & Jones; 2d, F. Von Kapff; do. under 1 yr., 1st, Andrew Banks; 2d, S. M. Shoemaker; cow, 3 yrs. or over, 1st, T. Alex. Seth; 2d, S. M. Shoemaker; heifer, bet. 2 and 3 yrs., 1st, Andrew Banks; 2d, Clark & Jones; do. bet. 1 and 2 yrs., 1st, Andrew Banks; 2d, T. Alex. Seth; heifer calf, 1st, Andrew Banks; 2d, F. Von Kapff.

Guernseys (registered).—All to G. S. Watts.

Jerseys, Alderneys and Guernseys (not registered).—Bull, 3 yrs. or over, 1st, T. T. Griffith; 2d, Edward Graefe; do. bet. 1 and 2 yrs., 1st, Edward Rider; cow, 3 yrs., 1st and 2d, T. T. Griffith; heifer, bet. 2 and 3 yrs., 1st, T. T. Griffith.

Ayrshires.—Bull, bet. 2 and 3 yrs., 1st, Wm. Hedricks; do. bet. 1 and 2 yrs., 1st, Notre Dame Academy; cow, 3 yrs. or over, 1st, A. J. Gent.

Herefords.—All to John Merryman.

Holsteins.—All to Ashland Iron Co.

Natives, Grades or Crosses.—Cow, over 3 yrs., 2d, Wm. Hedricks.

Fat Cattle and Working Oxen.—Fat cattle, 1st, John Merryman; pair of steers, 1st, Shepherd Asylum; yoke of oxen, 1st, S. M. Shoemaker; 2d, Charles T. Cockey.

HORSES—*Thoroughbreds*.—Stallion, 1st, Chas. Bosley; mare and foal, 2d, William S. Carroll;

filly, 3 yrs., 1st, E. Gittings Merryman. Saddle Horses.—Mare, 1st, Richard M. Howard; 2d, Charles T. Cockey.

Imported and Heavy Draft Horses.—Percherons.—Stallion and brood mare, to Wm. T. Walters; heavy draft, mare, 1st, S. M. Shoemaker; colt, 1 yr., 1st, George Hoover. Horses of General Utility.—Stallion, 1st, William Hunt; 2d, Thomas Coffield; gelding, 2d, Charles E. Parks; mare and foal, 1st, G. S. Watts; 2d, Charles E. Parks; span of horses or mares, 2d, Charles E. Parks; filly, 3 yrs., 1st, John Piersol; colt, 2 yrs., 1st, George Hoover; filly, 1 yr., 1st, G. S. Watts.

Light Draft Horses.—Stallion, 1st, George H. Elder; 2d, A. G. Lee; mare, 1st, Wm. F. Johnson; mare and foal, 1st, Wm. F. Johnson; 2d, John Merryman, Jr.; span of horses or mares, 1st, Wm. S. Carroll; 2d, Thomas Pearce; colt, 3 yrs., 1st, Edwin Scott; colt, 2 yrs., 1st, Richard M. Howard; colt, 1 yr., 1st, Wm. F. Johnson.

Teams.—Four horses, 1st, S. M. Shoemaker; six mules, 1st, Shepherd Asylum; four mules, 1st, S. M. Shoemaker.

Plowing Matches.—Three-horse plow, 1st, Griffith & Turner; 2d, A. G. Mott; two-horse plow, 1st, M. Davis; 2d, Wm. C. Haviland.

Plowmen.—1st, Elijah Sutch; 2d, Jno Gerber.

SHEEP—Cotswolds.—Buck, 1st, Stephen Gill; 2d, E. C. Legg; buck lamb, 1st, Stephen Gill; pen of ewes, 1st, E. C. Legg.

Lincolnshires.—Buck, 1st, Notre Dame Academy; 2d, T. T. Griffith; pen of ewes, 1st, Notre Dame Academy.

Southdowns.—Buck, 1st, George H. Elder; 2d, E. F. Kelly; pen of ewes, 1st, E. F. Kelly.

Shropshire.—Pen of ewes, 1st, Charles T. Cockey.

Merinos.—Buck, 1st, S. K. Crosby; pen of fat sheep, 1st, John Merryman; fleeces of Merino wool, S. K. Crosby.

Shepherd Dogs.—First and second, Dr. J. W. Downey.

SWINE—Berkshires.—Boar, 1st, Charles E. Parks; sow and six pigs, 1st, Charles E. Parks.

Chester Whites.—Boar, 3 yrs., 1st, H. Eichelberger.

Grades or Crosses.—Pen of shoats, 1st, D. M. Matthews; 2d, E. Scott Dance.

POULTRY.—Light Brahmas, chicks, 1st and 2d, Griffith & Turner; do. fowls, 1st, J. Talbot Kelley; 2d, Arthur Bosley; Buff Cochins, 2d, Manning Brothers; Games, B. B. Red, chicks, 2d, Griffith & Turner; B. B. Red Bantams, 1st, Thomas Marks; Golden Seabright Bantams, 1st, C. H. Lake; Plymouth Rocks, fowls, 1st and 2d, Thomas W. Hooper; chicks, 1st, Dr. A. W. Sweeney; 2d, Thomas W. Hooper; Golden Pencilled Hamburgs, fowls, 1st and 2d, Charles T. Cockey; chicks, 1st and 2d, same; Black Hamburgs, fowls, 2d, J. Talbot Kelley; chicks, 2d, same; Golden Spangled Hamburgs, fowls, 1st, Joshua F. Cockey, Jr.; chicks, 1st, same; White Leghorns, fowls, 1st, Wm. S. Treadwell; 2d, E. Scott Dance; chicks, 1st, Wm. S. Treadwell; Brown Leghorns, fowls, 1st, Samuel Collings; 2d, Charles B. Taylor; chicks, 1st, Charles B. Taylor; 2d, Samuel Collings; Pekin Ducks, 1st, Samuel Collings; 2d, George B. Cockey; Colored Muscovy Ducks, 1st, Miss Anna Matthews;

2d, T. Ellen Talbot; Peafowls, 1st, Wm. Hedricks; 2d, Manning Brothers; African Geese, 1st, Manning Brothers; Toulouse Geese, 2d, E. Scott Dance; Bronze Turkeys, 1st, Manning Brothers; 2d, Charles T. Cockey. *Dozen Eggs*, 1st, Thomas W. Hooper; 2d, Frank E. Corse.

AGRICULTURAL IMPLEMENTS.—For best, largest, most valuable collection, the Society's gold medal, to Griffith & Turner; second best, the Society's silver medal, A. G. Mott.

Ladies' Work at the Baltimore Cc. Fair

At the recent Timonium fair the display in the household department was most gratifying to those interested. The number of entries was not quite so large as last year, but in variety and quality there was a marked improvement, nearly every exhibit being good of its kind. Very few indifferent articles were presented, and this was most particularly noticeable in the department of needle work, where the display would have been creditable at any exhibition. The improvement in taste as well as execution was very decided, and called forth many compliments from ladies of acknowledged authority. The home-made rugs were particularly fine; several of them done in imitation of the imported Turkish rugs were really beautiful and quite handsome enough to grace any room, as the maker not only did her work well but showed taste and skill in arranging her colors. This is a step in the right direction, as what would have been quite in order ten years ago in way of coloring is not at all suitable to the present style of work. We are only imitating the embroideries of our great-grandmothers, and to make them perfect we must copy every detail.

In crews these old shades come in to perfection, and if the young daughters of our farmers only knew how simple and fascinating such work is, they would soon give us a much finer display of *crenel embroidery* than we had at the late fair; that was the weak point in the needle department. The Ladies' Decorative Art Association sent out some very pretty work for exhibition, which could hardly fail to inspire a wish to "go and do likewise," and a few lessons taken at the "Art" will enable almost any one to become quite proficient with the needle. A course of six lessons for five dollars soon pays for itself.

The china painting, though only a few pieces were exhibited, was of a much higher order than last year; and, to show what can be accomplished in a short time, the young lady who took the second prize has only had a few months' instruction at the Maryland Institute.

With regard to the cakes, pickles and preserves, the standard was so good as to make it almost impossible for the judges to decide where to place the premiums. Altogether the ladies of the county should feel very much encouraged, and unite in making even greater efforts for next year, not only for the sake of gaining premiums, but to keep up the high reputation they hold as housekeepers; also to help in the success of our fairs, as it is an undisputed fact that when the women show an interest in an undertaking the men are sure to follow suit.

H. E. C.

Home Department.

The Power of the Voice as a Home Element.

Our habitual tone of voice indicates pretty clearly the tone of our temper, and if we are vexed or disturbed in any way we unconsciously vary our tonet accordingly, and thus betray ourselves even more quickly than through the countenance. We can sometimes "see ourselves" reflected from the mirror "as others see us," which doubtless makes us keep better guard over the countenance; but it is quite impossible to hear ourselves as others hear us, and is not, therefore, surprising that we, oftener than we are aware of, expose our inward perturbations.

As to the habitual tone, it is usually such as was our birthright, unless we permit ourselves to become permanently warped or soured by the circumstances of our lives, when the voice then becomes likewise disordered. Any ill that flesh is heir to is liable to have a sympathetic expression in the tone of voice. As this, however, is in a great measure beyond our control as much as the conditions that cause it, we can only seek to bear those ills as cheerfully as we can for our own sakes, with the secondary object of making ourselves generally agreeable to those about us.

However chary nature may have been in the measure of melody bestowed upon our voices, she has not left us without some compensation. There is rarely a voice that may not be made pleasing by giving expression to the music of the soul—cheerfulness, kindness and sweet temper. Likewise may the most gifted of voices become anything but melody to our ears if allowed to set themselves in accord with a bad temper.

Parents have the greatest need to keep guard over the manner of their speech as well as the matter of it. We may so easily fall into the habit of a scolding tone, in order to emphasize either commands or reproofs, when we are totally unaware of it. The effect is never good, and in most cases creates rebellion in the heart, while it really intimidates the child. If a child will not heed the expression of our wishes given in our usual manner of addressing each other, it is because we have taught them that we only expect to be obeyed when we give especial emphasis to our words. The most tender-hearted parents will thus often do themselves as well as their children the greatest injustice. The child is for the time fully persuaded that the parent is angry, when there is probably not an angry feeling behind it at all. It is merely the habit of the voice.

When we do become irritated by our children, as we sometimes must, we ought to be extremely careful not to lose control of ourselves, even in the tones of our voices. The most severe rebuke I ever received from my husband was given on an occasion when, being unusually annoyed by one of my children, I called from the foot of the stairs to the child at the top a reply to a teasing question in a tone of voice that must have been far from lovely, for he said with such a pained expression: "Oh, H—! I

would have given anything never to have heard that." I knew it was not what I had said, but the tone in which I had said it. I trust he has forgotten it, but I never could; and the lesson was not lost upon me. If I have since erred in that way it has been with a guilty consciousness of it, and I pity those who seem unconscious when they thus do violence to their better nature.

I would not for a moment be supposed to advocate hypocrisy either of tone or speech, but that the real kindliness of our hearts which as members of one family, whatever the relation, emergencies will always develop, may find constant expression, if only in the tones of the voice. Especially is this desirable from the parent to the child and between the children themselves. It may be very well that all should subdue their tones to a low key in order to secure reasonable quiet to the household, but that is of less consequence than that their tones should be of a happy and cheerful character. Too much subduing may suppress all the natural outbursts of geniality, and while it insures a peaceful household may banish much of home cheerfulness, an element that lingers in the memory when all distinctive remembrance of the details have passed away. It is the pervading atmosphere of home that gives it the "sweetness," embodied in song and embalmed in the affections. CERES.

Questions and Answers.

Question.—I so often see reference to "stock" in directions for making soup. I would like to know all about it, yet I cannot find it in any of the receipt-books I have examined.

LAVINIA MYERS.

Answer.—Stock is a foundation for soups previously prepared, in order that soup may be quickly and thoroughly made without the delay otherwise necessary. It is also, if the principle is understood, an economical way to save nice scraps of meat and bones. There is sufficient glutinous matter in all meat and poultry or game to make it jelly if it is boiled long enough, especially if the bones are left in. Therefore, if you have odds and ends from your breakfast or dinner, instead of leaving them as an inducement for professional beggars to hang around your back premises, have them carefully put away as long as they will keep good, in order to get as many together as you can; then cover with water, season, and set on the back of your stove or range for at least five hours, always boiling slowly. In cool or cold weather add anything you like in soup in the way of vegetables or herbs; in warm weather it will keep better without these. Skim as often as it seems to need it, and finally pour through a sieve or colander into an earthen or stone jar, and when cold remove the fat from the top. You have then material for soup for several days. Cut from this (for it will be formed like jelly) as much as will make sufficient quantity of water palatable for your family soup; add rice, vegetables or macaroni—anything you like in your soup—and it is quickly prepared for the table. I also give you a good receipt for stock if you prefer to go to the

butcher's and buy your meats for the purpose. Ingredients—six pounds of knuckle of veal or beef; half pound of lean ham or bacon; quarter pound of butter; two onions; one carrot; one turnip; half head of celery; two gallons of water; boil six hours.

Economical Stock.—The liquor in which a joint of meat has been boiled, say four quarts, trimmings of the meat or poultry, shank bone, any pieces you may have on hand, together with spices, seasoning and vegetables; boil gently five hours.

Question.—Will "Ceres" please tell us the origin and special significance of the custom of throwing an old shoe after the departing bride?

Laurel, Maryland.

E. M. L.

Answer.—The use of the shoe as a ceremonial expression of accepting or rejecting authority seems to have obtained in Scripture times; hence it is inferred that the throwing of the shoe after a bride really signifies the yielding of authority over her by her parents or guardians, and if the bridegroom wishes to assume it he ought to endeavor to catch the shoe. However, it is more generally supposed to carry good luck to both, and is resorted to in many places when individuals are about to enter upon any new important undertaking.

Recreation for Farmers.

If there is any class of laboring men needing an occasional "let up" from the routine of work to which they are accustomed, that class is the one to which the farmer belongs. If there is any class of laborers which indulges less in recreation than the farming class, we have yet to find it.

The farmer seems to have imbibed the idea from his childhood, and it has "grown with his growth and strengthened with his strength," that he ought to work early and late; that to indulge in any recreation is weakness, and that in some way, which he cannot explain to himself if he tries to, his business makes him different from other men. The clerk may rest, the merchant may leave his store, the lawyer and the doctor may get away from their work; but the farmer is like a machine that goes by being wound up. As long as the spring furnishes motive power it goes on, when the spring gives out the machine stops, and then he rests, not because he wants to, but because he must.

Now there is no particular difference between the farmer and the minister, or the merchant. It is in the occupations, not the men. The merchant and the minister do not labor so much with muscle and frame, but their field of operation calls for brain work. The farmer toils in his chosen way, and brings a steady drain to bear upon his muscular system. The merchant and the minister get weary and feel the need of rest; they take it, and go back to work again refreshed. And so, with occasional intervals of rest scattered through their lives, they continue their labors, and are seldom worn out when they should be in their prime. The farmer labors till he feels the need of rest, but he will not allow

himself to listen to the warning. He makes a drudge, a slave of himself, and the only great difference between him and the slave, so far as labor is concerned, is that he is his own master, and not often the negroes of the South find a more tyrannical, exacting master than many of our farmers have in themselves.

It should not be so. The farmer should get rid of the idea that what the minister and the merchant needs when overworked he does not. If rest does them good, it will do him good. Why should he deny himself the pleasant things of life? Why should he make a slave of himself? Why should he make his life and the lives of his boys a sort of treadmill existence?

Few have the means at hand of making life more pleasant than the farmer. Let him once get the idea out his head that he is a machine, that he is different from his neighbor who does not till the land, let him realize the dignity of his profession, and he will begin to treat himself with more respect and care. He will not wake up some morning, in what should be the prime of life, to find himself a worn-out man; life will not be an endless round of labor, but scattered here and there along the road will be such days of rest as will bring to him new vigor.—*Farmer's Review.*

Cider for Bottling.

The juice of the apple as it comes from the press should be filtered through straw, then put into barrels, carried into the cellar and placed upon blocks or skids with the bungs up. Next remove the bungs, filling the barrels full with pure apple juice. Fermentation will soon take place, and any impure matter or pomace will work out at the bung hole. As this works out add more apple juice to keep the barrel continually full, otherwise the impurities in place of working out of the top of the barrel will rise against the top of the barrel and remain there. In order that this be effectually done it must be looked after every day, and all feculent and frothy matter removed. When effervescence ceases and no more matter rises the bungs may be driven in tight. In a few days provide clean barrels, into the bung holes of which insert a strip of clean cotton cloth about an inch and a half wide and about ten inches long, six inches of which has been dipped in melted roll brimstone, set on fire, driving up the bungs of the empty barrels tight, leaving the end of the cloth on which there is no brimstone out of the hole, so that the bung will hold it tight. Next remove the bung from the empty barrel and draw off the cider from the full barrel into it, being careful not to allow any sediment to come off. Finally, bung up this barrel, letting it remain undisturbed a few weeks, when the cider may be bottled at leisure. There are numerous methods of adding sugar, isinglass and other substances to facilitate the preparation of cider for bottling, but the natural process, as above described, answers a good purpose.—*Ex.*

LAMP WICKS soaked in strong vinegar or alum water, and dried thoroughly before using, will prevent smoke or unpleasant odor from lamps.

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BALTIMORE, OCTOBER 1, 1881.

The American Farmer for 1882.

In our next volume some marked changes and improvements will be made in the appearance and conduct of *The Old Pioneer*, and it is not too early to ask our friends to begin to call attention of those who are not now subscribers to its merits and its claims upon the support of intelligent agriculturists.

THE MARYLAND HORTICULTURAL SOCIETY'S EXHIBITION, which was to have been held September 27-30, was postponed on account of the death of the President, and as no date after that was found to be convenient, until the approach of too cool weather, it was determined to omit the annual show this year.

Death of President Garfield.

After nearly three months of intense suffering from the effects of the wound inflicted by an assassin on the 2d of July in the city of Washington, President JAMES ABRAM GARFIELD passed away from this life on September 19th at Long Branch, whither he had been taken before his decease in the hope that the refreshing breezes from the sea would aid in his restoration to health, for which the prayers of millions, not only of his fellow countrymen, but of nearly every nation of the whole world, daily ascended to the throne of Heaven, with a fervency and devotion which has no parallel in history.

The circumstances surrounding the life and death of President Garfield are wonderful indeed. Born in a rude cabin at the West, a fatherless orphan in infancy, the youngest of a family left to a poor and helpless mother, he climbed step by step, slowly but surely from the very lowest round of the ladder of life, from that cabin up to the highest pinnacle of fame in the eyes of the whole world, and enjoyed at the time of his death the affection and confidence, we can confidently say, of our people, which none of his predecessors possessed, if we may possibly except the immortal Washington, the father of his country.

The day before the funeral services took place at Cleveland, the congregation of Disciples in this city, of which denomination President Garfield was a member, held a service in honor of his memory, when the minister, Hy. D. Clark, who was a personal friend as well as a brother in the Lord, made the following remarks:

"The long agony is over; the great man sleeps as sleep the brave. Before the minds and hearts, not of the nation alone, but of the world, the vivid image of one man stands as never before in the annals of the ages. Only a few months ago he stood like Agamemnon, king of men, in the blaze of that fierce light that beats against the throne. To-day it is as the hushing of the psalm of life by a rough twang of the hand of disaster that rends all the harp-strings, and as the nation's heart beats against that casket we find our own sentiment expressed in the words of the weeping prophet: 'All ye that are above him bemoan him, and all ye that know his name say, How is the strong staff broken and the beautiful rod.' To-morrow, as the shadows slant to the east, with Lake Erie's waves to chant their perpetual requiem, the nation's representatives will bury James Abram Garfield. Bury him did I say? Can you bury those mountains, rock-ribbed and forest-crowned? Can you bury the nation's recorded history? Can you bury fifty million throbbing hearts? Even then you could not bury him. He has passed into the unseen holy. The world has had a few lives that stand forth in such marked

prominence as to be epochs in the onward march of history. With the glittering pageant of the 4th of March so soon transformed to weeds of mourning, I am the more impressed that no career is truly great but that of him who, whether illustrious or obscure, lives to the future in the present and draws from God the life and motive and reward of all his labor. In his own words, 'I must be prepared for either life or death,' and in the presence of one so fit to live and yet so ready to die be it ours to learn how to suffer with patience and die without fear. Eloquent tongues will tell of his manhood so magnificent and many-sided, of his power to grasp and generalize great thoughts, of his military powers and achievements, of his eloquence so masterful and stirring, and of his statesmanship that has stamped itself upon the public policy of the country, and in the outgoings of its beneficent results had reached the fields and looms and commercial marts. He will be entwined in the serene azure above the Capitol's massive dome as one of the nation's illustrious triumvirate—Washington, Lincoln and Garfield. At this hour and in this presence be it mine to pay the tribute of personal friendship and Christian brotherhood, and in doing so I feel that I speak his highest praise. When nineteen years of age he made a public profession of faith and united with the Disciples, and his after life has exhaled a delightful aroma of unobtrusive but consistent faith and piety. In all the homes of our land where there are mothers to be cherished and wives to be loved his name will be a household word. When he took upon his shoulders the burden that was already upon his heart he turned and kissed his venerable mother, and the last words penned by his trembling hand were addressed to her."

At the funeral, on Monday, the 26th of September, at Cleveland, Ohio, to which place the body had been carried by request of Mrs. Garfield, and in the beautiful cemetery near that city bordering on Lake Erie, and the prospect from which embraces a view of thirty miles, it is estimated that not less than 250,000 persons were present, of which 150,000 were strangers. It is probable that no such funeral was ever before witnessed, considering the character of those in attendance and the circumstances surrounding it.

The Maryland Agricultural College.

We notice by advertisements in some of the county papers that this institution has resumed its sessions. The appropriation of money from the State has now ceased; but, although the sum was continued during the last fiscal year upon the express stipulation that the establishment should be transformed into an Agricultural Experiment Station, we have heard of no steps being taken in that direction.

The Baltimore County Fair.

The show of this year was a creditable one in almost every department, the exceptions to the large exhibits usual heretofore being in the sheep and swine pens and the poultry house. The extreme and exceptionally warm weather prevented many from showing their stock, and the drought which had prevailed throughout the county cut off, in some degree, the farm and garden products. In cattle the display was an abundant success, the Jerseys, in number and merit, not only above the average, but, as a whole, probably unsurpassed in many previous exhibitions ever held on this side the Atlantic. A review of these by a competent contributor will be found on another page. There were two herds of Shorthorns, one from Edward B. Emory, of Queen Anne's, and the other from the Shepherd Asylum of Baltimore County, all fine specimens of that race, and attracting much attention by their massive forms. The herd of Guernseys heretofore referred to in our pages made a notable impression on all observers by their evident excellent qualities and splendid condition, and the belted Dutch cattle from the Ashland Iron Company, by their peculiar markings, compact frames and neat appearance, called forth many remarks of admiration. Mr. Merryman exhibited a herd of Herefords and six fatted animals of the same breed of great size and weight. There were but a few Ayrshires on the grounds, and no Devons.

In the sheep pens the Cotswolds of Messrs. Stephen Gill, and E. C. Legg of Queen Anne's, and the Merinoes of Mr. Samuel K. Crosby, were much admired, but the other deposits were meagre, as also were those of swine and poultry.

Among the horses there were some fine animals in every class. The Percherons of Mr. William T. Walters, consisting of both stallions and brood mares, and superb types of the race, were objects of universal admiration. The saddle class was unusually full, and included some good animals.

In agricultural implements and machinery a large and imposing display was made, but the excessive heat militated against the interests of the exhibitors, although, notwithstanding its influence, numerous sales were made of implements and machines in season.

The torrid temperature likewise interfered with the plowing matches, there being fewer entries and fewer spectators than heretofore, although there were still many interested observers.

The household department was well filled with innumerable products of the skill and taste of the housewives of the county, and the display of fruits and vegetables, was, considering the unfavorable season, very satisfactory.

There was no contest in the "Farm wagon displays." The Gunpowder Club alone entered for the prize, and was universally conceded to have been fully entitled to it, the number, quality and arrangement of the farm and garden products being extremely creditable. The other organizations heretofore competing were deterred by the drought which has cut short so many products of the earth.

The Bicycle races, the trials of equestrian skill, the trots and races, all gave interest to the Fair, and a feature which was regarded with much enthusiasm was the working of the shepherd dogs of Dr. J. W. Downey, of Frederick, in driving and penning sheep.

The weather during the fair was the warmest of the summer, and affected the attendance of visitors, which, however, was very large notwithstanding. Financially the fair was a success.

A Fit Nomination.

Although the *American Farmer* has nothing to do with political questions or personal candidatures, it will not be out of place to express the gratification felt at the renomination in Kent for the House of Delegates of Mr. T. A. Hulme. This gentleman was one of the two members of that body (and the only farmer) who, at its last session, voted against the bill withdrawing the State appropriations from agricultural societies—which was passed nominally in the interest of "reform"—a measure of pretended economy demanded by no section or class—a mere "tub to the whale," easily rushed through because the only interests to suffer were those of agriculturists. Mr. Hulme's vote did credit to his judgment and independence, and knowing him, as we do, as an intelligent and liberal-minded farmer, we are pleased he has this endorsement from his community, which is a strictly agricultural one.

We are as much opposed as any can be to State support of institutions of any kind which ought to stand or fall of their own merits, and if all such unwarranted appropriations were withdrawn we should find no fault. But we object to the singling out of the agricultural societies on which to practice this narrow economy. A well-conducted county society—like those, let us say, of Harford or Frederick—stimulates im-

provement, stirs up a spirit of enterprise; results in the introduction of better farm live stock and new machinery, the adoption of improved processes, and enlarges the basis of taxation, thus bringing back to the treasury as much, and more, than it draws from it.

The aid to these societies was coupled with such conditions as prevented, or ought to have prevented, any abuse of the State's bounty.

We refer here only to the county societies. The State Society (so-called) is on another plan. It has back of it no considerable active membership, and is in reality, as is generally known, merely an appendage of the Jockey Club. It has none of the influence of the county organizations, and the State's money given it, including the immense sum invested as capital, has rendered no adequate or even perceptible returns.

Purchase of Percherons.

Messrs. John M. Ripple and B. F. Newcomer, of this city, have purchased from Wm. T. Walters, Esq., the promising Percheron colt Morock, two years old, sire Prince, dam Topsy. Morock took the first prize as a yearling at the Pennsylvania State Fair at Philadelphia in 1879, and gives every indication of making a very superior horse. He will stand next season for a limited number of mares at the farm of Mr. Ripple, near Williamsport, Washington County, the object of his purchasers being the improvement of the horses of the vicinity rather than any immediate pecuniary benefit to accrue. The same gentlemen have also bought the mare Rose, four years old, a full sister to Morock. She has been bred to Sultan. Mr. Ripple has breeding a number of mares to imported stallions, and has now about twenty half and three-quarter bred Percherons, the influence of which on the stock around him cannot but be soon manifest to its decided improvement.

Maryland Dairymen's Association.

A meeting of this association will be held at 12 noon, on Thursday, October 6, at the office of the *American Farmer*, 128 Baltimore street, Baltimore. The Executive Board meets at 10 A. M.

PLEURO-PNEUMONIA IN MARYLAND.—We regret to learn of the appearance in some quarters of the State of this fatal disease among cattle. The law enacted for its extinction has been carried out in such a manner as to be of little or no effect.

C. AULTMAN & Co. exhibited at the recent Fair at Timonium, under the direction of their energetic manager in Baltimore, Mr. Hugh W. Matthews, one of the largest and most complete, as well as interesting collections of farm machinery and implements on the grounds. It comprised in part a Traction Wood Engine, Portable Farm Engine, a "New Model" Thresher and Separator, the Buckeye Self Binder and Combined Mower and Reaper, the "Triumph" Grain Drill, "Tiger" Hayrake, Randall Harrows, and other well-known specialties which he handles, and all of which have established reputations for thorough construction and effective work.

The Grange.

MONTGOMERY CO., MD., GRANGE, No. 7, held its last meeting at Damascus Grange Hall, at Browningsville. There were present delegates from all the Granges in the county. Animated discussions were had upon the school system, State agency, fertilizers, sheep and dogs, etc. At 1 P. M. the Grange adjourned to partake of the bountiful feast provided by the sisters of Damascus, after which it attended a public meeting in a grove near by. A brass band, an organ and a large choir of voices furnished good music. Addresses were made by Bros. Young, of Barnesville, Sochiffely, of Darnstown, and Lawrence, of Brighton, and the large audience dispersed after joining with band, organ and chorus in the patriotic hymn of "America."

Health Maxims.

From Dr. JAMES C. JACKSON'S Lectures.

Sleep is God's smile.
 God broods the obedient.
 Law is truth systematized.
 Train yourself to precision.
 Everything in nature is under law.
 Lunches are little devilisms.
 Eat simple food at regular hours.
 Get well from the inside out.
 God's heart aches at the sorrows of men.
 God has no sympathy with the abnormal.
 A sick body is in rebellion to the divine rules.
 Next to a capacious brain is a capacious stomach.
 Rest after eating. A nap is Heaven's kiss on the brow.
 Good food makes good blood, and good blood is the life of the body.
 Life has no securities to those who live regardless of law.
 People believe that life is hap-hazard, therefore their health is hap-hazard.
 The law of inertia is the strongest law upon the sick, therefore rest frequently.
 We lose infinitely in this world by losing control over ourselves.
 It is an indefensible way of living that one child out of every five dies.

There is no room in this world for chance; there is only room for God and man and faith.

The worst forms of disease grow out of excessive appetitive indulgence in the way of eating.

Nature cannot carry on her healing processes without regularity, therefore be regular in all your habits.

To lie down after work, and so take off pressure, is to render a doctor unnecessary in ninety-nine cases out of a hundred.

The first step from sickness to health is to arrest the consciousness, to get into right relations to law, physical and soulful.

Antagonize yourself to sickness. Determine that you will not be sick, then live according to the laws of your being.

Educate the stomach. When it is once accustomed to simple food, voracious appetite, distress and disease will disappear.

There is a vast difference in being cured and getting well. Being cured is to have a doctor after you. Getting well is to have God after you.

Mixtures of Grass Seed for Various Soils.

The formulas or mixture of grass seed for the various soils used by farmers in England, as well as in this country, which have been found adapted to various soils, are given by a correspondent of the *Prairie Farmer*.

For sandy soils:	Lbs.
Timothy.....	2
Red Top.....	6
Velvet grass.....	4
Rough-stalked meadow grass.....	6
White clover.....	12
Medicago maculata.....	3
Creeping meadow grass.....	3

Per acre.....36

For a sandy soil with slight mixture of clay:	Lbs.
Timothy.....	2
Rough-stalked meadow grass.....	6
Sheep fescue.....	6
Rye grass.....	4
Meadow oat grass.....	3
Vetch, or wild pea.....	2
Red wire grass.....	3
Red clover.....	10

Per acre.....36

For calcareous soils:	Lbs.
Meadow Brome grass.....	5
Orchard grass.....	4
Oat grass.....	4
Rye grass.....	2
Rough meadow grass.....	9
Kentucky blue grass.....	2
Tall spear grass.....	3
Lucerne.....	2
Red clover.....	6
Italian clover.....	4

Per acre.....40

For stiff clay soils:	Lbs.
Timothy.....	2
Meadow foxtail.....	4
Rough meadow grass.....	9
Meadow fescue.....	4
Sheep fescue.....	3
Wild parsnip (<i>P. danum officinale</i>).....	3
Medicago maculata (species of sea weed).....	2
Red clover.....	10
Vetch.....	2

Per acre.....39

When to Feed Grain to Horses.

Horses are provided with an unusually large development of the salivary glands, and an enormous quantity of saliva is secreted during the eating of a feed of grain or hay. This copious supply of saliva is sufficient to moisten and dilute the food, so that it can be digested perfectly without the help of water. Water is absorbed by the coats of the stomach and enters the blood with such rapidity that a thirsty horse will drink more water than the stomach will contain at one time, and the water begins to pass off through the kidneys in such a case after the lapse of a very few minutes; so that knowing these facts one may naturally infer that a horse may be watered a few minutes before feeding with more advantage than soon afterwards, because in the former case the water has been absorbed before the food is swallowed, and digestion cannot be interfered with by the presence of too much water in the stomach, as might happen in the latter case. The best practice is that usually followed, namely, to give the horse very little water on starting out to work after feeding in the morning; to water on coming in at noon, and in the evening, before unharnessing and feeding. This gives time for the absorption of the water before the food enters the stomach.

POLLED OR HORNLESS CATTLE, known in Scotland as Angus cattle, are becoming aristocratic, popular and profitable. They are said to be bringing higher prices in Scotland than the best of shorthorns. At the late sale at Balquharn, a cow brought 225 guineas (\$1,125) and others, with bulls, from 42 up to 180 guineas. The average obtained for 15 cows was £74 18s.; that of the 36 head then sold, £56 11s. 1d.—say about \$273 each. It is evident that the breed of Angus cattle is increasing rapidly, not only in Scotland but in England; for they are taken hold of now eagerly by noblemen and gentlemen of large estates, who, until a few years ago, considered them poor and rather too plebian to pass into the aristocratic hands. Well, why should it not be the case with all those desirous of making the most from their landed estates? The beef of this choice breed brings, usually, one to two cents more per pound in the London market than the best of any English breed, and the bullocks can be reared at least 10 per cent. cheaper than horned cattle. Indeed, some who have kept polled cattle alongside of horned, both in Great Britain and America, say the cost of rearing them for a beef market is 20 to even 25 per cent. in their favor.

ROCK HALL, KENT COUNTY, MD.,
September 22, 1881.

MESSRS. J. C. DUBROW & Co.,
35 Light Street, Baltimore.

Dear Sirs: Enclosed please find my check in payment for the "Croft Windmill" I bought of you. After thirty days' trial, must say if it continues to work as it has done I would not be without it for twice the cost if I could not get another. Yours respectfully,

[Copy of certificate.] B. F. SAPPINGTON.

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NEARLY ALL THE ILLS THAT AFFLICT MANKIND can be prevented and cured by keeping the stomach, liver and kidneys in perfect working order. There is no medicine known that will do this as quickly and surely, without interfering with your duties as Parker's Ginger Tonic. See Advertisement. *

THE BEAUTY AND COLOR of the hair may be safely regained by using Parker's Hair Balsam, which is much admired for its perfume, cleanliness and dandruff eradicating properties. *

Baltimore Markets—October 1.

Breadstuffs.—*Flour*—The tone of the market is firm at the late advance, though the demand, as usual on Saturday, is a shade less sharp. Stock is small and sellers possess the advantage of the situation. We quote as follows: Howard Street Super \$5.25@6.25; do Extra 6.50@6.75; do Family 7.40@8.25; Western Super 5.25@6.25; do Extra 6.50@7.35; do Family 7.40@8.15; City Mills Super 5.25@6.00; do Extra 6.50@7.00; do Rio brands Extra 8.00@8.25; Winter Wheat Patent Family 8.00@8.50; Spring Wheat Family, "clear," 6.25@6.50; do "straight," 6.75@7.25; Minnesota Patent Family 7.50@8.00; do high grades 8.50@9.00; Patapco Family 8.75; do Extra 8.55; Chesapeake Extra 8.35; Orange Grove Extra 8.15; Fine 4.50@5.00; Rye Flour 6.00@5.25.

Wheat.—The market was fairly active. We quote: Cash \$1.48@1.48½, October 1.48@1.48½; November 1.52½@1.52¾; December 1.56½@1.56¾; S. Fultz 1.40@1.50; S. Long Berry 1.50@1.60.

Corn.—Southern white Corn is fairly steady, and yellow is nominal for want of stock. The market for Western to-day was quiet and fairly steady, closing at the inside figures generally. Cash 75½@75¾; October 75½@75¾; November 78@78½; Steamer 73; S. White 85.

Oats.—The demand is fair and the market steady and firm. We quote: Western mixed 50; do bright 51@52; do white 52@53; Pennsylvania 51@52; Southern 51@53.

Rye.—The arrivals are to distillers direct, and the market is quiet and steady at \$1.13 for prime Pennsylvania and Maryland.

Mill Feed.—The inquiry is moderate and the market about steady. Western is quoted at \$19@20 per ton, and City at \$25 for Brownstuff and \$22 per ton for Middlings.

Hay and Straw.—The demand for Hay is very regular, and the market is firm, with moderate supply. Straw fairly active. We quote as follows: Baled Hay—

Cecil Co. Timothy \$24@27; Western \$20@22 for large and \$22@24 for small bales; mixed \$20@22; Clover \$19@21 per ton. Straw—\$9@10 for Wheat; \$10@12 for Oat; \$16 for long Rye; \$14 for short do.

Provisions.—The market is generally firm, with an active order trade reported for the standard articles. We quote packed lots from store as follows: Bulk Shoulders 9½c; C. R. Sides 11½c. Bacon Shoulders 10½c; C. R. Sides 12½c; Hams 14½@16c. Refined Lard in tierces 13½c; Mess Pork, per bbl., \$20.75.

Butter.—The demand for choice stock is active and the market is very firm, with a moderate stock of all grades. We quote Glades at 30@32c. for selections and 25@28c. for dairies; choice New York State 30@32c.; fresh Western, choice, 25@27c.; do good to prime 20@23c.; near-by receipts 23@27c. per lb.

Eggs.—The trade is quiet and market easy at 18@19c. per doz. for strictly fresh.

Cotton.—The market is quiet, the business running almost exclusively on stock to arrive, which is offered relatively cheaper. We quote nominally as follows, viz.: Middling 11½@11¾c.; Low Middling 11½c.; strict Good Ordinary 10½c.; Good Ordinary 10c.

Live Stock.—*Beef Cattle.*—The market was fairly active. We quote prices as follows: Very best 4½@5½c.; first quality 3½@4½c.; medium 3¼@3½c.; ordinary 3@3½c.; extreme range of prices 3@5½c.; most of the sales were from 4@5c.

Swine.—The receipts are rather light this week, and their quality shows some improvement on last week's offerings. Prices are a shade better than they were then, and the demand is fair to good. We quote grass Hogs at 7@8c., and the better grades at 8½@9½c., and a few extra at 9½c.

Sheep and Lambs.—There is a large increase in the receipts over last week, but in them is a large number of common Sheep. Trade is variable—in one of the yards reported fairly active and in the other slow. We quote butcher Sheep 3½@5c.; Lambs 4½@6c. Stock Sheep—Ewes \$2@3.25 per head; Wethers 3½@4c. per lb.

FOR SALE.

- ONE YOKE YOUNG WELL-TRAINED HOLSTEIN OXEN, with yoke and nearly new cart
 ONE JERSEY BULL, "HAZEL NUT," in excellent condition, between 2 and 3 years old, registered in the Herd Register of the American Jersey Cattle Club.
 ONE JERSEY BULL, 8 months old, also registered in the Herd Register of the American Jersey Cattle Club.

APPLY AT

S. M. SHOEMAKER'S PLACE,

Near Stevenson's Station, N. C. R. W.,

BALTIMORE COUNTY, MD.

STOVES! STOVES!! STOVES!!!



We desire to call the attention of dealers and others to the superior line of goods we are manufacturing at our foundry and offering at attractive prices. The

New Emerald Cook

embodies all the latest improvements, and is unsurpassed as a baker. Our celebrated

Fire-Place Heaters

still remain ahead of all competition. We also manufacture a large variety of Cook and Heating Stoves.

Furnaces and Ranges

adapted to the wants of all. Farming Implements repaired at short notice. **ED** Machinery and all kinds of castings made to order at low rates.

B. C. BIBB & SON,
Baltimore, Md.

Foundry, Port Deposit, Md.

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We respectfully call your attention to our **Enamel Ready Mixed Paints**, prepared for immediate use, which is rapidly superseding the ordinary Paint. Experience has fully demonstrated that it will stand exposure to the weather much longer than Paint mixed in the usual way, that it will retain its *Brightness of Color*, and will not crack or peel off.

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Manufacturers of

White Leads

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PAINTS

In Oil.

COLORS,

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100 W. LOMBARD ST.

BALTIMORE, MD.

It can be applied by any person and the expense of employing a Painter is saved, whilst the cost of the Paint will be one-third less than when mixed in the ordinary way.

We are prepared to give any information that may be desired on application by mail or in person, and solicit a trial from you to be convinced of the above statements. Address:—

Eutaw Paint Co.

100 W. Lombard Street,

BALTIMORE, MD.

For Sale.

Two Registered Jersey Cows and Two Heifers. Cows 3 and 4 years old, and in calf to Mercurio 4783—a bull three-eighths Alpheia. Heifers trace to the Splendid 2, Pansy 8, Albert 44, which has produced more large butter makers than any other strain in the country. Will be sold cheap for want of room. **T. Alex. Seth**, 28 St. Paul St., Balto., Md.

Registered Jerseys.

CHATSWORTH FARM,

Reisterstown, Balto. Co., Md.

FOR SALE. Registered Calves, tracing to such bulls as Lord Rex 1413, Le Lancy 2234, and Watts 2618, the two first combining the blood of Albert, Splendid, McClellan and Pansy 8. The excellence of **Lord Rex**, now at the head of my herd, is everywhere conceded.

My herd took at the Baltimore County Fair of 1881 the Special Jersey Herd Prize of \$100, and five other First Prizes, the judges being Jno. V. N. Willis, Esq., of N. J., and Colin Cameron, Esq., of Penna., and the conditions of competition unusually exciting.

ANDREW BANKS.

MAKE HENS LAY.

An English Veterinary surgeon and Chemist, now traveling in this country, says that most of the Horse and Cattle Powders sold here are worthless trash. He says that Sheridan's Condition Powders are absolutely pure and immensely valuable. Nothing on earth will make hens lay like Sheridan's Condition Powders. Dose, one teaspoonful to one pint food. Sold everywhere, or sent by mail for eight letter stamps. **I. S. JOHNSON & CO.**, Boston, Mass., formerly Bangor Me.

MARYLAND and DELAWARE NURSERIES.

Peach Trees: Early Alexander, Brigg's, Amnden, May, Howers' Early, Early Rivers, Foster, Crawford's, Mixon, Stumps, St. John, Rose, Lord Palmerston, etc. **Apple Trees:** Astrachan, Fanny, Harvest, Shockly, Red Margaret, Cuillasaga, Yates, Lawyer, Nickajack, etc. **Strawberries, Raspberries, Grapes, Plums, Apricots, and Ornamental Trees.** For full list of varieties and prices send for catalogue. **D. S. Myer**, Bridgeville, Del.

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KEEPS THE HIGHWAYS FIVE TIMES BETTER FOR HALF THE PRESENT COST IN CITY OR COUNTRY. PARTICULARS FREE. **S. PENNOCK & SONS** MACHINES SENT ON TRIAL. KENNETH SQUARE PA

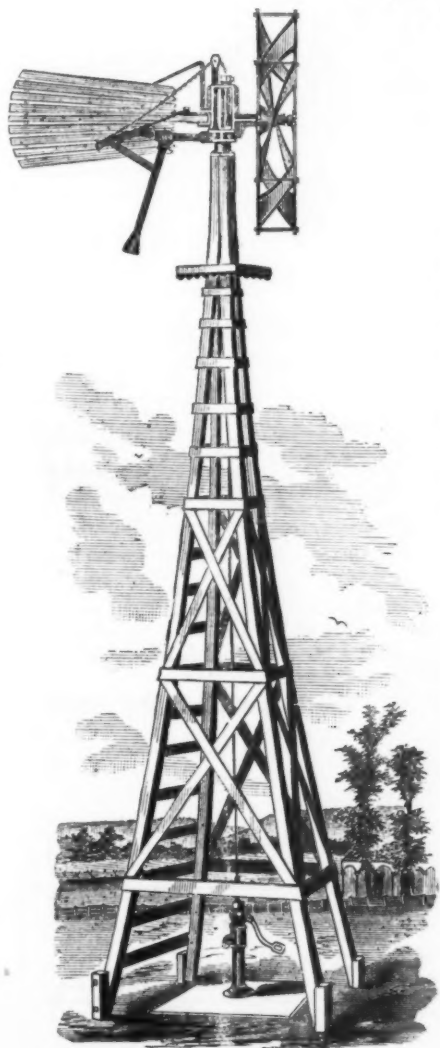


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The Best now in use. Very Strong, Simple and Durable. Runs while other mills are standing still.

The Mill being made entirely of Iron, renders it superior to the trappy affairs made of wood, as it is not affected by the weather. The Buckets of our Wind Mill are so constructed as to get the full power of the wind without breaking its force on the inside edge of the bucket, as it travels at about the same rate of speed as the outer edge. This Mill is fully warranted, and any purchaser will be given thirty days' trial before settling for it.

Send for Descriptive Circular.

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Wood and Iron Pumps,
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Registered Berkshires.

For Sale.—Very choice lot of Pigs, sired by Boar Barney, son of the famous Boar **Robin Hood III.** Orders should be sent in at once to secure the best of litter. For further information and prices apply to

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Dr. Peck's Artificial Ear Drums
PERFECTLY RESTORE THE HEARING
and perform the work of the **Natural Drum.** Always in position, **but invisible to others.** All Conversation and even whispers heard distinctly. We refer to those using them. Send for descriptive circular with testimonials. Address,
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Besides the largest and most complete general stock of Fruit and Ornamental Trees in the U. S., we offer many **Choice Novelties.** Priced Catalogues sent as follows: No. 1, Fruits, 10 cts. No. 2, Ornamental Trees, etc., 15 cts. No. 3 Catalogue of Strawberry and other small fruits, free. No. 4, Wholesale, free, and No. 5, Catalogue of Roses, free. Address,

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The splendid young Alpha Bull Mercurio. (4783.) will stand to serve a few registered Heifers, at \$10 each.—Animals of both sexes for sale at all times.

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A Dietrick Perpetual Hay Press No. X,

FOR BELT.

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New Sheep Dip, Cattle and Dog Wash

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Non-Poisonous.

Non-Corrosive.

Is a Sure Cure and Remedy as follows:

SHEEP. Scab, Ticks, Lice, Fly or Maggots, Grub in the Head, Foot-rot and Worms.
HORSES. Mange, Grease, Cracked Heels, Saddle Galls, Wounds, Sores, Thrush, Bots, Glanders and Lung Disease.
CATTLE. Mange, Lice, Texas Ticks, Ring-worm, Tape-worm in Calves, Mouth and Foot Disease and Pleuro-Pneumonia.
PIGS. Lice, Mange, **DOGS.** Mange, Fleas, and Hog Cholera. **POULTRY.** Lice, Gapes, and also Purifies the Houses.
HORTICULTURAL USES. Aphid in all Apple Blight, Scale and Bark Louse on Orange Trees, and Ants.

One gallon is sufficient for 120 gallons of cold water for use. May be used cold.
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Removes Dandruff
Flies Perfumed.
Prevents Baldness
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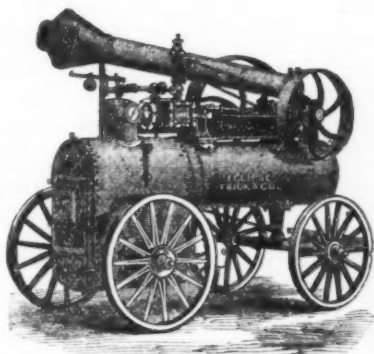
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To Wheat Growers!

The undersigned, PIONEER in the manufacture of Fertilizers in this city, and ORIGINATOR in 1858 of the Formulas and processes of manufacture of

"Excelsior" and Ammoniated Phosphate,

So well and favorably known by the Agricultural public, relying upon his experience and personal reputation hitherto acquired in the uniform excellence of these Fertilizers, as manufactured by him, continues to offer them to the Farmers and Planters of Maryland and Virginia, with the assurance that the high standard quality of each will be maintained as heretofore.



AND



The above are the most concentrated FERTILIZERS ever afforded to the farmers and planters—combining all the stimulating qualities of Peruvian Guano, and the ever-durable fertilizing properties of Bones, in fine, dry powder, prepared expressly for drilling.—it is the universal opinion of the farmers of Maryland and Virginia, after over twenty years experience in the use of the EXCELSIOR manufactured by me, in growing Wheat, that an application of 100 pounds is equal in its effects to 200 pounds of any other Fertilizer or Guano, therefore fully 50 per cent. cheaper.

With my present advantages and superior facilities for manufacturing, I challenge competition with any Fertilizer sold in the United States, in Quality, Mechanical condition and Price.

By strictly adhering to my Original Formulas, using only the most concentrated materials, and superintending in person their manufacture—as for the past twenty years—

Uniform Quality is Guaranteed.

Farmers, to secure the ONLY GENUINE EXCELSIOR and PHOSPHATE, prepared according to my Original Formulas established in 1858, should see that every bag is branded as above, with the ANALYSIS and MY NAME IN RED LETTERS.

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Composed of the most concentrated materials, it is

RICHER IN AMMONIA & SOLUBLE PHOSPHATES

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And keep constantly on hand a large supply of high-grade PERUVIAN GUANO.

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Send for SPECIAL CIRCULAR of these valuable varieties of BEES before purchasing elsewhere.

I shall devote my personal attention to rearing and introducing, as last season, and in every instance guarantee satisfaction or money refunded.

The Perfection Honey Fox.

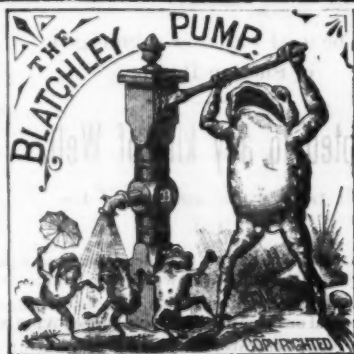
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The "Success" Pump is the Best in the Market.

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Can Extinguish a Fire.



**A Double-Acting, Anti-Freezing
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Can be used either as submerged
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Will raise water 400 feet if re-
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This Pump having two cylinders (Brass) and piston rods, each of which are double acting, enables it to
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Each pump is furnished with hose attachment, and is most effective in case of fire. Write for Circulars,
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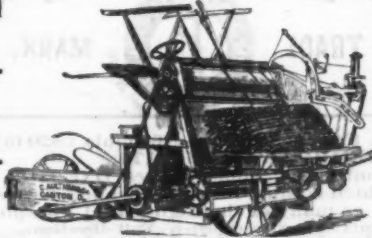
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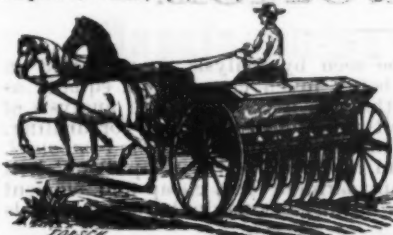
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This well-known and popular Drill, with recent improvements, has special claims to public favor. The Farmer's Friend Drill, with Cone Gear for regulating quantity, &c., and Double Force Feed Seeder, is worthy of notice. The Monarch Drill, with Pulverizer and New Force Feed Fertilizer Distributor, is what the farmer has

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Pure Bone Meal, Pure Dissolved Bone, Potash, Ammonia,
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Powell's Tip Top Bone Fertilizer.

Only One Price--\$30.00 a Ton Cash. No Commission to Agents.

SPECIAL NOTICE.

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All Bilious Affections,
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Is a purely vegetable faultless Family Medicine, for all diseases caused by a Deranged State of the Liver. It has been manufactured at Laroque's Pharmacy, Cor. Baltimore and Harrison Sts., for more than fifty years. Its efficacy in all forms of Liver diseases has been tested and approved by thousands who have used it successfully. The price also is within the reach of all, being 25 cts. for packages and \$1 for the liquid in bottles.

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Forming the most concentrated, universal and durable FERTILIZER every offered to the farmer—combining all the stimulating qualities of Peruvian Guano and the ever-durable fertilizing properties of Bones in fine, dry powder, prepared expressly for drilling, and can be applied in any quantity, however small, per acre. It is the opinion of many close-calculating farmers, after TWENTY-THREE YEARS experience in testing it side by side with other popular fertilizers, that an application of 100 pounds of "EXCELSIOR" is equal to 200 pounds of any other fertilizer or guano, and therefore fully 100 per cent. cheaper.

Uniformity of Quality Guaranteed by the Manufacturers.

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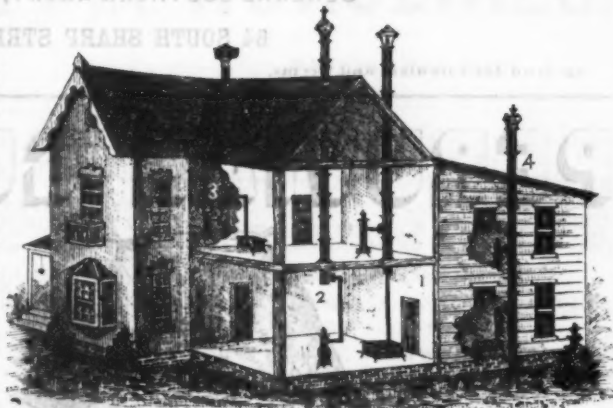
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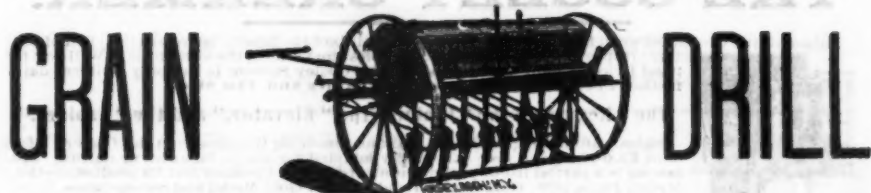
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FALL OF 1881

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Imported into the United States by Messrs. W. R. Grace & Co., New York, agents for the consignees the Peruvian Government, having received a supply direct from the best Guano deposits, containing per cent. Ammonia, offers it for sale, delivered from the Government Storehouses, Waters' Wharf.

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Ammonia,	- - - -	6 Per Cent.
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The Guano is perfectly dry and free from lumps. Purchasers will please see that the bags have the word "Lobos" stamped on them.

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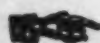
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